A Hitchcock Publication

Feature Articles 43-93
Finishing Section 99
Safety Section 149
Veneer & Plywood Section 121

NOVEMBER, 1950

Complete Index 5
Products Index 210
Advertisers Index 212

LONG TIME NO SAW

Long time since Indian sell cigars. Him now outmoded like most woodcutting saws on market. Many moons ago neon signs replace oaken Indian. But not until Big Four develop N.D.* saw has anything been done to improve old-fashioned saw blades.

Now, Big Four brings you the *first* revolutionary change in saw blade manufacture in 150 years. It's non-tensioned! It's true running! It's smooth cutting! It's distortion proof! It's NEW DESIGN from the arbor hole to the carbide tip and it's made only by Big Four.

N.D.* saws have a heavy body which eliminates stiffening collars. Blades run true and cut clean for *your* job specifications determine fin length. Every tooth does its share for fin is held to minimum length. Teeth are milled, too, (not stamped) from tempered steel plates . . . are free from internal strains. Kerf is precision fitted . . . designed for *your* job.

So take a good look at your saws and their production records. Remember that medicine men at Big Four's Cincinnati plant have the remedy for your sawing problems if you find your blades, like the woe-begone redskin, are relics of the past. Big Four blades make heap big difference in scrap heap, too!

* New Design

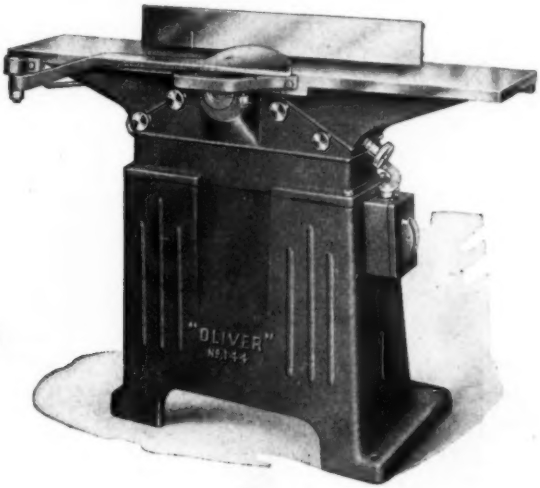
BIG 4 CARBIDE TOOL CO.

BIG FOUR CARBIDE TOOL COMPANY

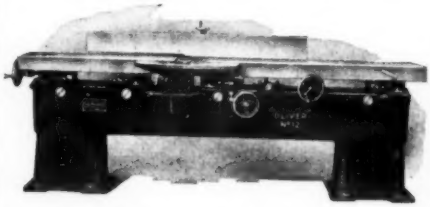
5938 CARTHAGE AVENUE • CINCINNATI 12, OHIO

"OLIVER" 8-inch HAND PLANER AND JOINTER

This heavy type Jointer saves dollars on those smaller jobs



You'll find the "Oliver" No. 144 Jointer a favorite in hundreds of woodworking plants. It is speedy, economical, convenient to operate. It smoothly planes stock up to 8" wide for perfect glue joints. The work slides easily over the 60-inch, highly polished tables. Three-knife circular safety cylinder runs in self-aligning ball bearings. Bevel fence is adjustable from square to 45° across the table. Table lowers up to ½-inch for rabbeting. Fitted with new automatic knife guard for utmost safety.



"Oliver" makes a full line of precision-built Jointers from the junior size 6-inch to the 30-inch for rugged production work and pattern shops.

Write for Bulletin No. 144

OLIVER

OLIVER MACHINERY COMPANY • GRAND RAPIDS 2, MICH.

stay put!

Being dimensionally stable, Masonite Hardboards won't pull or twist out of shape. No cracks appear to let dust seep through. And, since they are equally strong in two directions, they make a perfect core or cross-banding material for door panels, end panels, tops, and drawer bottoms.

take and hold any finish or lamination.

Paints, enamels, lacquers, stains or wax can be applied by brushing or spraying. Masonite Hardboards can be silk-screened or lithographed. Laminate wood, veneer, fabric, metal or plastic to them.

resist surface injuries

With their high density and hardness, smooth-surfaced Masonite Hardboards resist dents, scratches, scuffs and other abrasions.

won't split, splinter, or crack

The same consistency through and through. No splinters to snag sheer hosiery or fine underthings. No grain to rise and mar handsome applied finishes.

easy to fabricate

Can be punched, drilled, routed, sawed, beveled, sanded, shaped and die-cut. Save time, reduce costs, improve quality.

long-lasting

Masonite Hardboards will last the life of the furniture. Tough, hard and extremely durable. Resist moisture permanently.

inside and out . . .

MASONITE® HARDBOARDS

A glance will show you that this distinctive double dresser is a fine piece of furniture. We've "exploded" it to show you where Masonite Hardboards are used to make it stronger and longer lasting.

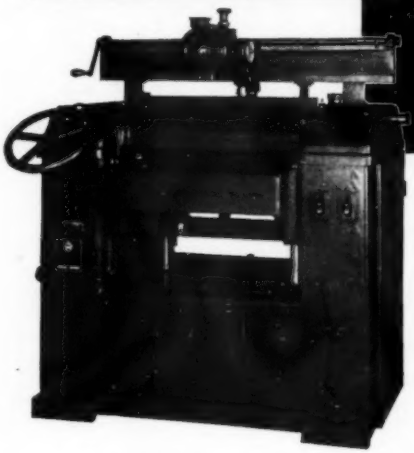
You see these smooth, hard and dense panels of "wood made better" in the back panel, in drawer bottoms, as dust stops and as a core material for richly veneered tops and sides. Here, as in so many furniture items *of all types and all prices,* Masonite Hardboards add to quality, increase value, cut production time and lower costs.

There are 39 different types and thicknesses of Masonite Hardboards. To find out which will best suit your production needs, write Masonite Corporation, Dept.WWD-11 111 W Washington St., Chicago 2, Ill.

MASONITE® CORPORATION

More than 300 leading furniture manufacturers use Masonite Hardboards

DIVIDEND DESIGN gives the PORTER 405 SURFACER 5 Big Advantages



- HIGHER SPEED OPERATION
- PREMIUM CAPACITY
- FASTER ADJUSTMENT
- EASIER OPERATION
- LONGER LIFE

Because of Dividend Design, a Porter 405 Surfacer will handle more lumber at lower cost than ordinary machines. Its extra margin of speed, capacity and strength produces heavier cuts, smoother work and a more profitable operation.

DIVIDEND DESIGN makes the Porter 405 Surfacer extra fast for surfacing at higher speeds. A matched "V" belt drive rotates the cutterhead at 6,000 RPM to assure clean, smooth, perfect work. This high speed is made practical by the newly designed chipbreaker which keeps the machine running free at all times.

DIVIDEND DESIGN permits heavier cuts on a Porter 405 Surfacer. Free and easy cutting action makes possible the use of an increased blade angle without increasing the size of the motor. This means greater surfacing capacity with no rise in power costs.

DIVIDEND DESIGN simplifies adjustment of a Porter Surfacer. The operator quickly varies the rate of feed even as the lumber moves through the machine.

DIVIDEND DESIGN makes it easier to surface pieces of many different sizes and shapes. Individual magnetic controls prevent operation of the feed unless the cylinder is running. All rolls are power driven.

DIVIDEND DESIGN prolongs the life of a Porter Surfacer. It has the extra strength and extreme rigidity of welded steel, ribbed construction. This provides a durability achieved only with excessive weight with cast iron.

Write today for complete information on the advantages of Porter **DIVIDEND DESIGNED** *machinery*

C. O. PORTER Machinery Co.

668 Front Ave., N. W. Grand Rapids 4, Michigan

BEACH SWING CUT-OFF SAW

$395. F.O.B. FACTORY

TABLE $195.00 EXTRA

WRITE FOR FREE FOLDER

Beach Swing Cut-Off Saw shown above is popular Model #605 furnished with built-in 5 horsepower electric motor. Also available with 3, 7½ and 10 horsepower motors. All machines are self-contained units of Steel construction. Swinging arm is mounted on ball bearings and has vertical adjustment of 2".

BEACH

MANUFACTURING CO. • MONTROSE, PA.

Wood Working Digest

NOVEMBER, 1950 — OUR FIFTY-SECOND YEAR

NED BAILEY
Editor in Chief

E. McDANIEL
Editor

THOMAS A. DICKINSON
THOMAS D. PERRY
Contributing Editors

R. C. VAN KAMPEN
President

VINCENT C. HOGREN
Vice President

J. E. HITCHCOCK
Vice President

M. L. YONTS
Secretary

ROBERT R. HADLEY
Art Director

ROBERT GOODWIN
Circulation Manager

The Editor's Page 35
Pointed Paragraphs 37
Keen Edges are the Answer to Keen Competition 43
By E. T. Larson
Wood Engineering in Scotland 49
By David Murray
Unicel Freight Car May Help Transportation Crisis.... 58
Major Problems and Trends in Kiln Drying 65
By Joe Steel
Cutting Technique for Wood (Part 8) 75
By Thomas D. Perry
Reisen Lumber and Millwork Company Services 85
Better Rides for Furniture (Part 1) 93
By S. L. Swenson
How is Your Sanding I.Q.? 99
By H. H. Connelly
Woodworking Industry Notes 115
Veneer, Plywood and Laminated Wood Section 119
Veneer and Plywood 121
By Ned Bailey
Techniques in Hardwood Plywood Quality Control....125
By James Bethel and Roy Carter
New Literature Section 146
Safety in Sawmilling 149
Equipment and Supplies for the Woodworking Industry 163
Mechanics Through the Ages 186
Wood Working Digest Buyer's Service 188
The Market Place 189
Products Index 210
Index to Advertisers 212

PUBLISHED MONTHLY *Vol. 52 No. 11*

Acceptance under the act of June 5, 1934, at Pontiac, Illinois, authorized March 30, 1948

DISTRICT MANAGERS
New England and Eastern N. Y. State: Dan E. Reardon, Box 259, South Glastonbury, Conn. Phone: Glastonbury 3-2400
New York, Metropolitan Area: Alvin E. Wailes, c/o Hitchcock Pub. Co., 55 W. 42nd St., New York 18, N. Y. Telephone Lackawanna 4-4528.
Pennsylvania and South Atlantic States: Raymond J. Sietsema, c/o Hitchcock Pub. Co., 55 W. 42nd St., New York 18, N. Y. Telephone Lackawanna 4-4528
Michigan and Toledo, Ohio: John A. Wright, 8360 W. Outer Dr., Detroit 19, Mich., Telephone Kenwood 2-6140
Ohio, Western New York, Western Pa., Indiana, Kentucky: Henry J. Smith, 3529 Radcliffe Road, Cleveland 21, Ohio, Telephone ERieview 1-0550
Middle West: James C. Stewart, 222 E. Willow Ave., Wheaton, Ill., Telephone Wheaton 8-3400
South Central States: Missouri, Kansas, Arkansas, Oklahoma, Texas and Memphis, Tenn. Ned Bailey, 11 Howell Ave., Eureka Springs, Ark. Telephone Eureka Springs 4982.
Western: Henry J. Niekerk, 1838 So. Emerson St., Denver 2, Colo.
Pacific Coast: Fred Frisenfeldt, 1250 Wilshire Blvd., Los Angeles 17, Calif. Telephone: Tucker 6703.

Copyright 1950, by Hitchcock Publishing Co., 222 E. Willow Ave., Wheaton, Ill.
Phone Wheaton 8-3400
Cable Address HITCHPUB

Whatever your sanding problem...

. . . there's a SUNDSTRAND Straight-Line Action Air Sander to solve it!

Yes, whatever the operation from white sanding through rubbing the lacquer finish . . . the versatile Sundstrand performs it equally well. And it's done smoothly, easily, quickly because the pads reciprocate in opposite directions *for straight line action!* No swirls, no pressure marks . . . no fatiguing vibration! Easily operated by women. Three models to fit your exact needs for finishing large or small areas, sharp corners, confined areas, curved surfaces. To always get a super-fine finish, get Sundstrand.

WIDELY USED FOR: White sanding, wash coat sanding, sealer sanding, rubbing lacquer finish, padding in filler . . . and any other special operations needed for a perfect finish. Write for free bulletin W-52.

SUNDSTRAND

SUNDSTRAND AIR SANDERS

SUNDSTRAND MACHINE TOOL CO.

ROCKFORD, ILLINOIS

More Footage From J&O Heads and Every Foot True to Pattern!

JONES & ORTH H-Type Cutter Heads allow perfect take-up for wear without change of cutting angle!

Long runs or short runs — you never have to apologize for variations from your patterns when you use JONES & ORTH H-Type Cutter Heads. Patented holder permits knife to be moved forward as it wears down, *with unchanged cutting angle.* Knives usable right down to the last fraction of an inch, with no change of pattern! *Quick service* on standard or special patterns! Ask your dealer, or write our nearest branch!

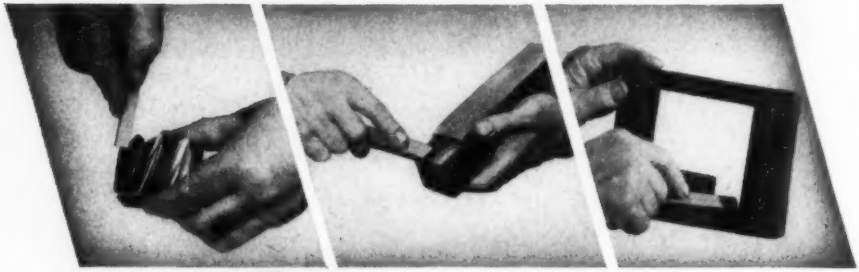
JONES & ORTH

CUTTER HEAD COMPANY

385 SOUTH MAIN STREET
MEMPHIS 3, TENN.

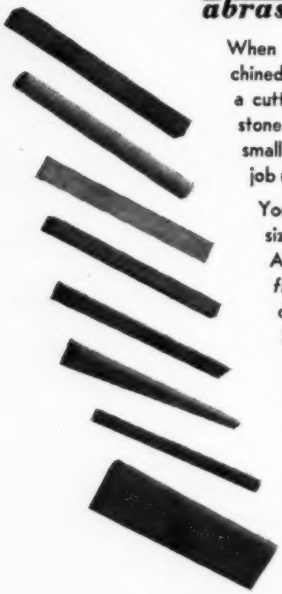
BOX 3084
SEATTLE 14, WASH.

You'll use them all over the shop!



NORTON abrasives

OILSTONE FILES



When you're fitting a die, deburring a machined part or putting that final, keen edge on a cutting tool, the right sized and shaped oilstone file is essential. It lets you get into those small crevices, holes and odd corners to do the job right and in quick time.

You take your pick of more than 200 different sized and shaped INDIA® and HARD ARKANSAS Oilstone Files. *And they're all file*—not just rows of individual teeth to wear down. INDIA electric furnace aluminum oxide is standard for general use, and the natural abrasive—HARD ARKANSAS—is the choice for final finishes and real precision work. *Only Behr-Manning offers this complete line of Natural as well as Manufactured Stones.*

These descriptive folders tell the whole story. Write for them today. Address Dept. WD-11.

BEHR-MANNING®

BEHR-MANNING

TROY, N.Y.

ALSO COATED ABRASIVES FOR EVERY INDUSTRIAL NEED

Exclusive with BUSS

CABINET SURFACERS

BUSS

features THAT PROVIDE Finer Finished Planing

BUSS No. 44 SINGLE SURFACE CABINET PLANER

GREATER PRODUCTIVITY!

Buss Planers thrive on comparison, for thorough comparison discloses the fact that these machines not only have all the worthwhile features of conventional cabinet planers, but many exclusive features that assure closer tolerance, greater productivity with the finest of finished planing. For instance:

FOR MORE ACCURATE BED-SETTING — A micrometer dial with .001" graduations.

FOR GREATER ACCURACY IN GRINDING AND JOINTING KNIVES — Micrometer Down-feed adjustment.

TO PREVENT SHAVING-PRINTING and damage caused by knots — the Shearing Bar.

FOR GREATER STABILITY — more weight, type for type and size for size than any other planers . . . a highly important factor in precision planing and even more important when machines of this kind are put into high production conveyorized installations.

FOR SUSTAINED ACCURACY and long wear — Chromium-plated beds and pressure bars.

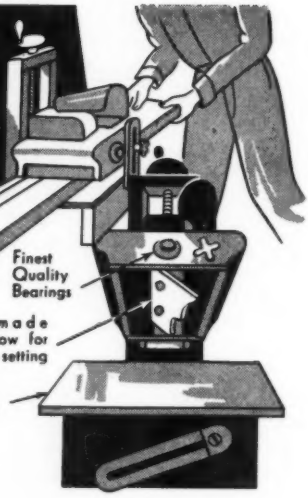
FOR GREATER PRODUCTIVITY — Instant, micrometer adjustment of lower rolls and pressure bar . . . reducing to seconds otherwise long and tedious adjustments.

Get the complete facts before buying any cabinet surfacer. There's a type and size to suit your requirements. Singles — small, medium and large; Double Surface type and the No. 55 for planing rough lumber. Bulletins on request.

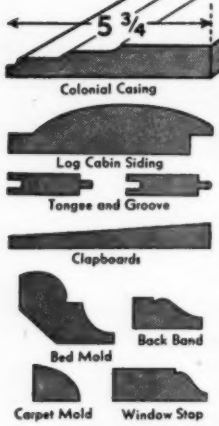
BUSS
MACHINE WORKS

234 EIGHTH ST., HOLLAND, MICHIGAN

MAKE YOUR OWN MOLDING RIGHT ON THE JOB FROM WASTE


Finest Quality Bearings
Precision made arbors allow for accurate setting of cutters.
Heavy polished cast iron table.
Mechanically guaranteed by manufacturer.

- SAVE COSTS ON ANY JOB
- PLANE UP TO 11" WIDE
- MOLD 4" x 5¾"
- SAFE



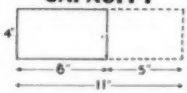
MOLDER and PLANER

MOLD or PLANE
YOUR OWN DIMENSION STOCK

CUTTERS

M. & M. makes a thousand patterns with heavy duty cutters of highest grade steel. Most standard molding cutters carried in stock. Special cutters may be had by furnishing sample or line sketch.

CAPACITY



Stock capacity 4" thick 6" wide (up to 11" wide by reversing material and running through second time).

ADJUSTABLE PRESSURE BAR

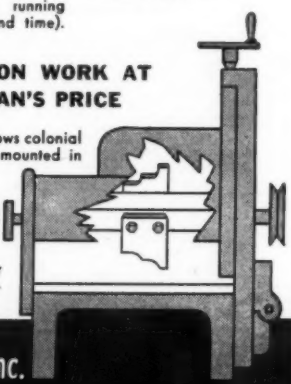
Adjustable pressure bars eliminate wave or chatter marks, assuring precision finish only duplicated by machines costing thousands of dollars.

RUGGED CONSTRUCTION

Rugged construction for life time operation. A production tool for the woodworking craftsman, carpenter, cabinet maker, building contractor, lumber mills and industrial organizations. Considered by leading authorities as most outstanding development in wood working power tool field in recent years.

PRECISION WORK AT WORKMAN'S PRICE

Illustration shows colonial casing cutter mounted in machine.



$67.50

Complete for thickness planing.

WRITE TODAY FOR DEALER'S NAME

Descriptive literature will be sent upon request.

Name .....

.....

.....

.....

EAGLE SALES Inc.
KEENE, N. H.

Penacolite® Resorcinol Adhesives . . .

- ***CURE AT ROOM TEMPERATURE***
- ***SET UNDER LOW PRESSURE***
- ***FORM PERMANENT, WATERPROOF BONDS***

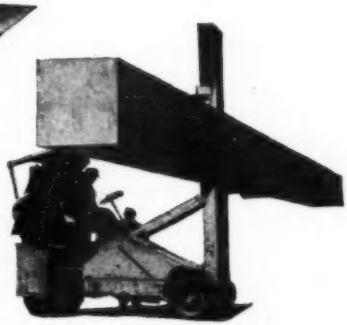
Large job or small, curved application or straight . . . in *all* wood bonding, Penacolite Resorcinol Adhesives form a permanent bond that is stronger than the wood itself!

And Penacolite adhesives cure in a few hours at room temperature (70°F. to 90°F.) or in a few minutes under applied heat. No strong catalysts are needed. Pressures as low as 25 p.s.i. are often sufficient.

Penacolite adhesive bonds will not deteriorate with age. They're unaffected by molds, fungi, organic solvents, most acids. And they will withstand all temperature conditions under which wood is serviceable.

If you have a bonding problem, write for our free Penacolite booklet.

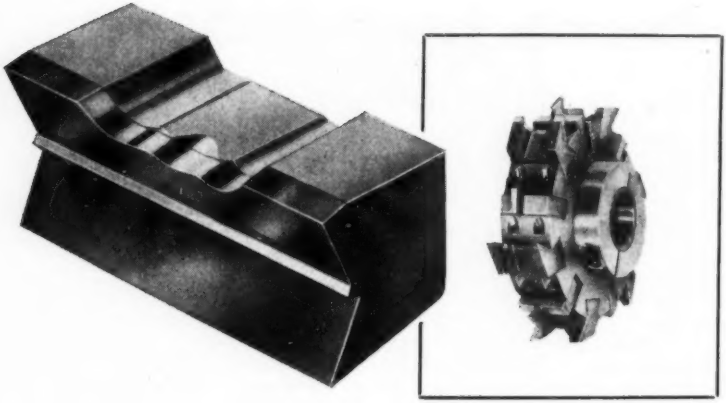
Bridge arches stay bonded when bonded with Penacolite. (Photo courtesy American Lumber & Treating Co.)



Springboard, left, and dredge spud, right, are bonded with waterproof, permanent Penacolite. (Photos courtesy Timber Structures, Inc.)

KOPPERS COMPANY, INC.
Chemical Division, Dept. WWD-11, Koppers Building, Pittsburgh 19, Pa.

KOPPERS **PENACOLITE RESORCINOL ADHESIVES**



MARCOLOY CARBIDE KNIVES

will increase production, cut costs on

RAIL and POST BEADING

Carbide knives are a "natural" for rail and post beading — especially for long runs.

You will get better work too. Since all sharpening is on the face of Marcoloy knives (never on the clearance side), the form stays true for the life of the tool.

You can save sharpening time, increase production, cut "down time" on your machines with Marcoloy Carbide Knives.

These long-lasting Marcoloy Carbide Knives frequently enable you to step up your rate of feed on a machine. This gives you more production.

In the long run—when maintenance costs are figured—carbide knives usually cost less than any other kind.

Marcoloy Carbide Knives are precision-made and are engineered for your machine and your job.

You may have our recommendations on any application without charge or obligation. Send us a sample or print and machine specifications.

MARCOLOY CARBIDES

GET IN TOUCH WITH MARCOLOY, INC. SPRINGDALE, CONN.

FINER FINISH SANDING AT A NEW LOW PRICE!

- Straight-Line Reciprocating Action — Leaves No Marks
- Only Two Moving Parts—Never Needs Oiling—Uses 110-120 V. A.C.
- Easy To Use—No Bearing Down — Continuous Use Doesn't Tire Operator
- Weight Less than 5 lbs.—Over-all Size, 3⅛" wide x 4½" x 7"
- Dust-Proof — Fool-Proof—Fully Guaranteed
- 21 Square Inches of Sanding Surface

RUGGEDLY BUILT FOR ECONOMY-WISE INDUSTRIAL FINISHERS

The new Dremel Model 2000 is a fast-cutting, finish sander. It offers for the first time in the industrial field, a truly top-quality electric sander at a remarkably low price. Its rugged construction, trouble-free design, versatile performance—plus low initial purchase and operating cost—all demand your thorough investigation. Call your supplier, or write us for details.

DREMEL MANUFACTURING CO. 2426 18th St. RACINE, WIS.

ELECTRIC DREMEL POWER TOOLS

EVERY SHOP NEEDS . . . EVERY SHOP CAN AFFORD THE NEW DREMEL ELECTRIC MODEL 2000 SANDER

WOOD-LOK® a proven production tool

READY FOR USE!

— without additional labor or equipment

NO EXTRA LABOR. Wood-Lok*, a cold run resin adhesive, comes ready for use. No mixing, heating, or soaking is necessary. With steam coils and glue heaters off the year round, workers' productivity is considerably increased!

NO EXTRA EQUIPMENT. Wood-Lok sets 25% faster for high speed joint assembly operations. It permits you to increase present output without purchasing special equipment or relocating [illegible]

LESS DOWN TIME. The Wood-Lok bond is non-abrasive—reducing down time on machines and slashing tool resharpen-

present output without purchasing special equipment or relocating machines. The Wood-Lok bond is non-abrasive—reducing down time on machines and slashing tool resharpening costs!

WOOD-LOK pays off in *goods delivered* . . . with resilient, shock-resistant joints that mean safer shipment—greater durability in use!

Write for further information and samples. Address: 270 Madison Avenue, NEW YORK 16; 3641 So. Washtenaw Ave., CHICAGO 32; 735 Battery St., SAN FRANCISCO 11; and other principal cities. In CANADA: National Adhesives (Canada) Ltd. TORONTO and MONTREAL. In ENGLAND: National Adhesives, Ltd., SLOUGH.

(*Reg. trade mark)

National ADHESIVES

OK! SHOW US how we can step up production with National's WOOD-LOK. ☐ Have a representative call on_____

☐ Send a free sample.

Mr._____

Company_____

Address_____

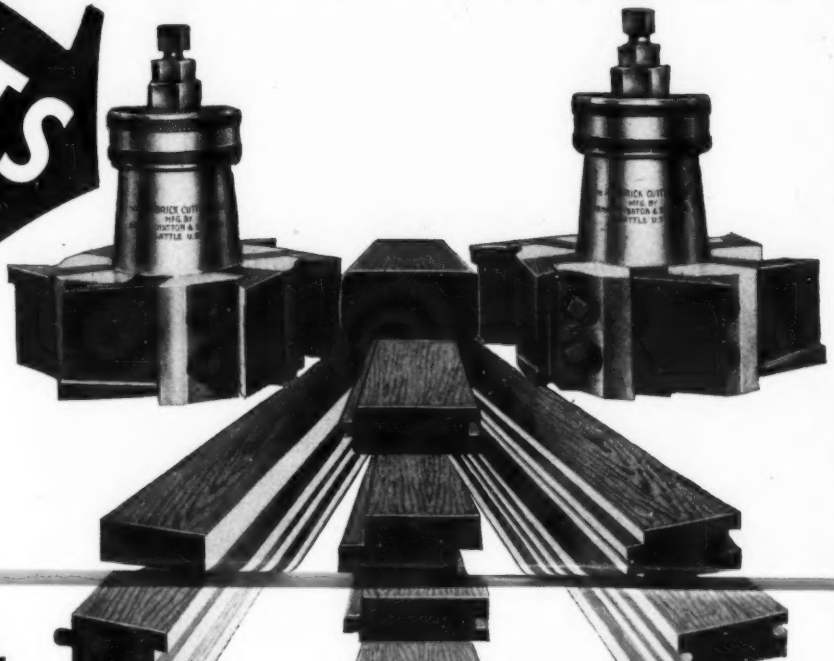
City_____ Zone____ State____

ERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

DISSTON PHILBRICK®

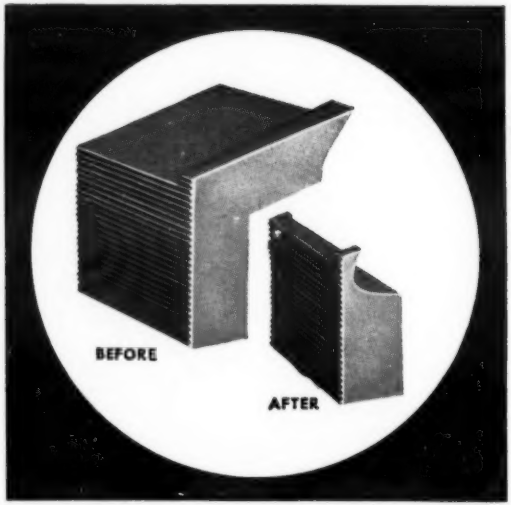
GENERATED TYPE (Milled to Pattern)

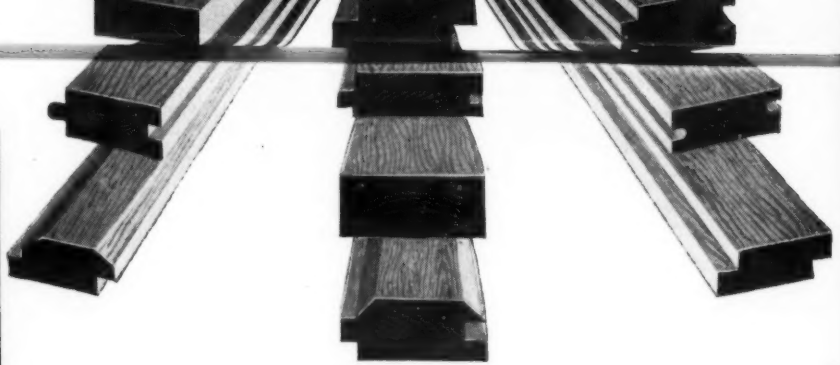
CUT COSTS CUTTER HEADS



ONE GOOD REASON

You can work a wide variety of patterns with each pair of Disston Philbrick head bodies. Knife changes are quick, simple. No holders, clamps, gibs—no trouble. Work safeguarded. Manpower, downtime and material saved.





ANOTHER GOOD REASON

36,000,000 lineal feet cut by one set of generated knives like the above. Pattern retained for full $1\frac{9}{16}''$ of wear with standard heads on flooring, eased edge and similar patterns. That's typical Disston Philbrick knife life *and economy*. Compare these figures with your present knife costs.

STILL MORE GOOD REASONS

Longer life—with Disston Philbrick heat treated alloy heads.

Smoother operation—with precision-made heads, dynamically balanced.

Added rigidity—with thrust direct to strong head body (makes a smoother finish).

Faster feeds, heavier cuts—with thicker knives, greater throat room, free discharge of shavings.

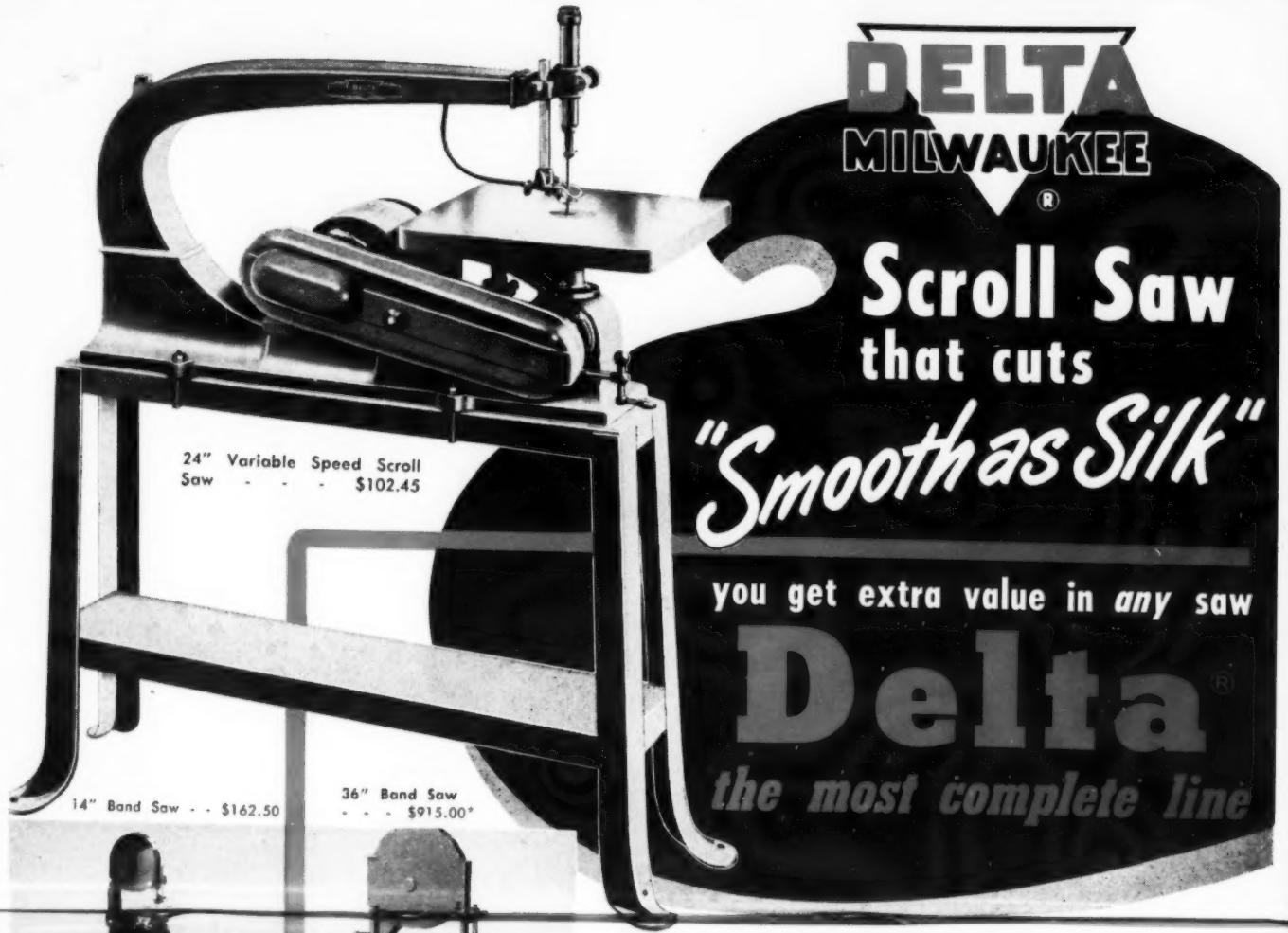
Smoother finish, more footage produced, lower investment and operating cost—with Disston Philbrick Cutter Heads.

ESTABLISHED 1840
TRADE MARK
REG. U.S. PAT. OFF.

HENRY DISSTON & SONS, INC.

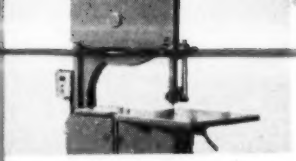
1195 Tacony, Philadelphia 35, Pa., U.S.A.

Canadian Factory: 2-20 Fraser Ave., Toronto 3, Ont.

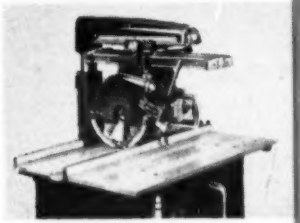


For scroll work, you want a saw that cuts fast and smooth — and that's just what you get when

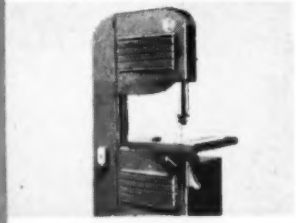
Multiplex Radial Arm Saw - - - $405.00*



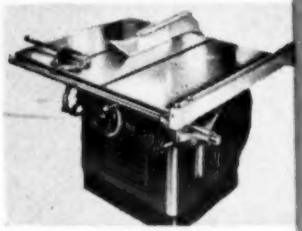
20" Band Saw - $340.00*

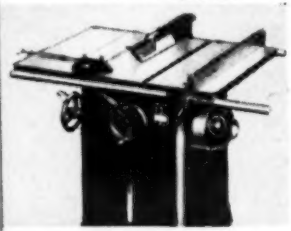


12" Tilting Arbor Saw - - - - - $795.00*



10" Tilting Arbor Saw - - - - - - - $234.00





Motor and switch extra in some cases. Prices subject to change without notice.

Plus zone delivery charge

Plus

3 Band Saws | 6 Circular Saws | Scroll Saw | 4 Jointers | 11 Drill Presses

53 Machines — 246 Models

And over 1300 accessories

For scroll work, you want a saw that cuts fast and smooth — and that's just what you get when you buy Delta. For Delta gives you extra quality every time — at surprisingly low cost. And this extra value is backed by complete selection — whether you want a band saw, circular saw, radial arm saw — or the scroll saw you see above.

Be *sure* you're right when you buy a saw — or any of the other wood- and metal-working machines that make Delta the most complete line available — the only line with complete accessories for every tool. Be *sure* by buying Delta every time.

Sold only through authorized dealers — available on easy time-payments. Look for the name of your Delta dealer under "Tools" in the classified section of your telephone directory.

DELTA POWER TOOL DIVISION

Rockwell

Manufacturing Company

MILWAUKEE 1, WISCONSIN

DELTA • MULTIPLEX • CRESCENT • HOMECRAFT

Tear out this coupon and mail today!

Delta Power Tool Division
ROCKWELL MANUFACTURING CO.
660M E. Vienna Avenue, Milwaukee 1, Wisconsin

Send me free catalogs and bulletins on the complete DELTA line.

Name.....

Title.....

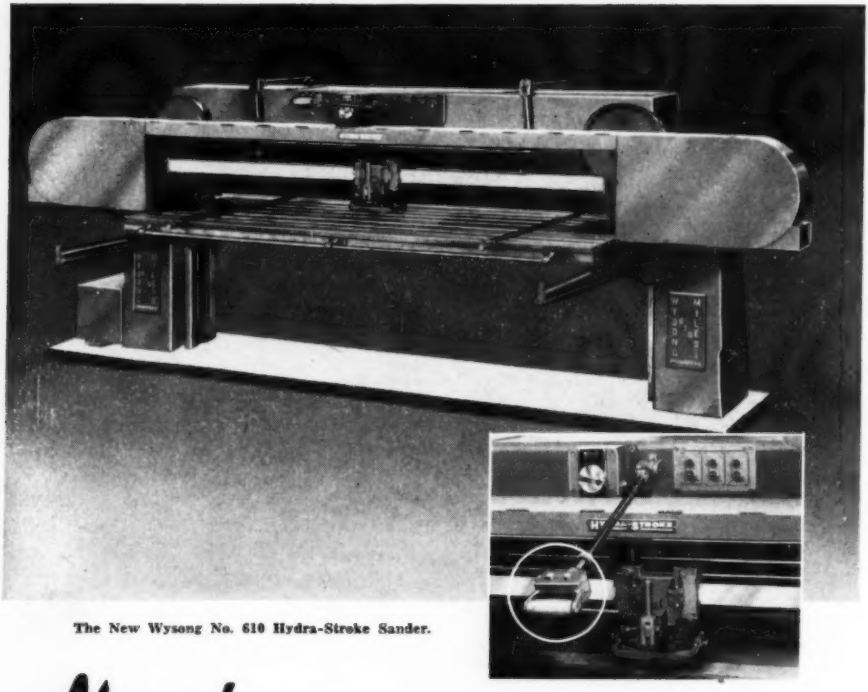
Company.....

Address.....

City.....(.....) State.....

W-59

5 Grinders . . . 3 Welders . . . 2 Shapers . . . 4 Radial-Arm Saws . . . 2 Abrasive Finishing Machines . . . 3 Cut-Off Machines . . . Mortiser . . . Deburring Machine . . . Lathe . . . 2 Saw-Jointer Combinations . . . 2 Planers . . . 2 Buffing Machines.



The New Wysong No. 610 Hydra-Stroke Sander.

Push-Button Sanding. Note the new finger-tip control (circled) for changing stroke length.

New!

Faster, More Powerful, Push Button Sander — With a Velvet Smooth Hydraulic-Stroke

THIS IS IT! The rugged, tough, production line sander with the sensitive sanding touch. All previous flat belt sanding production records go toppling wherever the new Wysong No. 610 Hydra-Stroke goes to work.

POWER TO SPARE . . . A powerful hydraulic pump driven by a 7½ H. P. motor delivers more than enough hydraulic power . . . one user reports continuous cross-cut sanding at full speed all day long, without any time loss from kick-outs or overheating . . . Cut faster and deeper without a murmur of protest from the New Wysong No. 610

POSITIVE, FAST, STROKE LENGTH SETTING . . . Push buttons at the finger tips on the stroke lever handle, set the length of stroke. It takes only a moment. The operator doesn't even shift his weight or his hands to change the stroke length . . . and when the stroke is set, it stays. No creeping stroke change to waste time and spoil stock edges . . . One user reports that he sands an extra truck-load each day during time saved by this feature alone.

ALL THE SPEED AN OPERATOR CAN HANDLE . . . Ninety strokes per minute at 8-foot setting; 100 at 6-foot setting: proportionately faster on shorter strokes. Your operator will marvel at the way the new Wysong No. 610 increases footage without additional work on his part.

A LIGHT TOUCH by the operator is all that it takes to control the perfectly balanced sanding pad carriage. Polish the thinnest veneer or cut down rough stock without strain. The sanding pad carriage moves on a hardened steel bar with perfect bearing. It can't rock to dig-in and gouge stock.

LESS MAINTENANCE . . . Only two external lubrication points. All other moving parts run in a fully enclosed oil bath. No oil dripping to damage stock and dirty the floor.

IN ADDITION . . . you get all the advantages of Hydraulic Stroke sanding . . . uniform stroke speed for smooth, even sanding and finger valve control of stroke speed . . . plus push-button control to start or stop belt, raise or lower table and start or stop hydraulic stroke. The Wysong No. 610 Hydra-Stroke truly gives you push-button control of sanding machine operation.

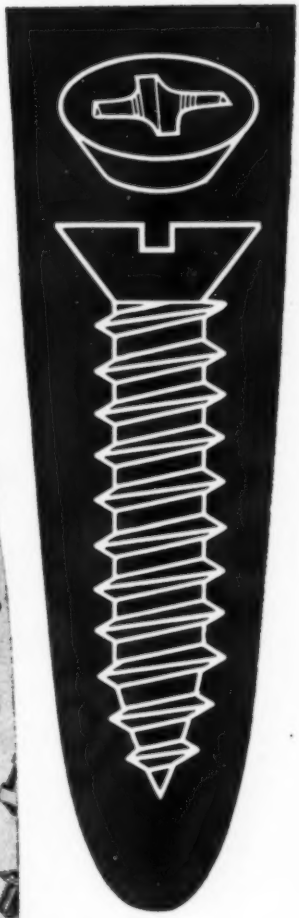
YES . . . this is it! The finest flat belt sander ever built. You'll agree when you see the New Wysong No. 610 Hydra-Stroke in operation.

See your dealer or write to the factory for full information.

WYSONG and MILES Co

GREENSBORO, NORTH CAROLINA

The first 100 years are the hard test



During our century of experience, we've been proved on practically every type of fastening problem. Today, every fastening we make . . . every customer we have . . . benefits from this accrued experience. When you order Blake & Johnson fastenings, you *know* that a hundred years of know-how have gone to make those fastenings the best your money can buy.

Tapping screws in all sizes, heads and finishes, standard and special, have recently been added to round out our fastening line —to make Blake & Johnson a "one-stop" source for all your fastening needs.

BLAKE & JOHNSON *Fastenings*

Slotted or Phillips head machine screws, wood screws, stove bolts, tapping screws, special headed products, nuts, rivets, chaplets, wire forms, screw machine products . . .

in steel, stainless steel, copper, brass, bronze, everdur nickel, nickel silver, monel, aluminum . . .

1849-1950

A CENTURY OF MANUFACTURING FASTENINGS FOR ALL INDUSTRY

THE BLAKE & JOHNSON COMPANY
WATERVILLE 48, CONNECTICUT

Please send me your new catalog containing full data on the complete line of Blake & Johnson fastenings.

NAME

TITLE

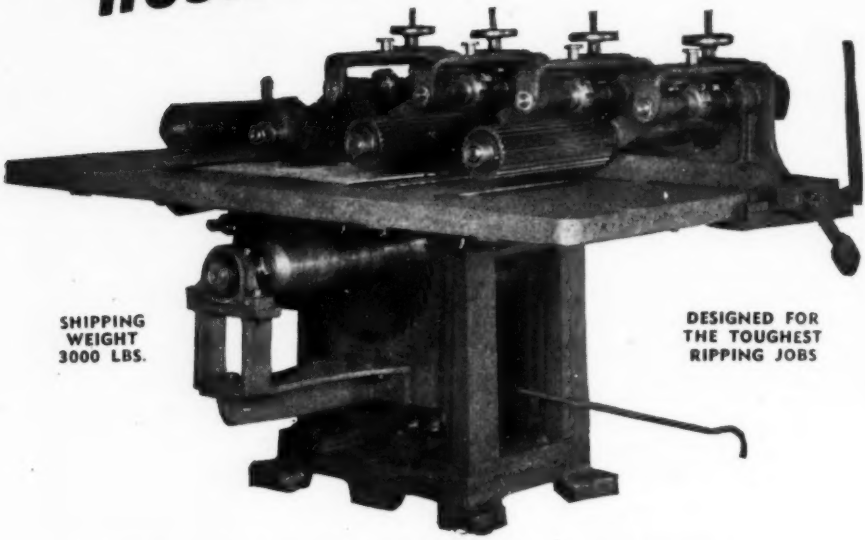
COMPANY

ADDRESS

WWD-11

A REAL HUSKY...

NO. 213 HOOSIER SELF FEED RIP SAW



SHIPPING WEIGHT 3000 LBS.

DESIGNED FOR THE TOUGHEST RIPPING JOBS

FOR QUICK OPERATION - DEPENDABLE PERFORMANCE

This sturdy unit is designed specifically for high speed ripping of stock longer than 24" and as a gang ripper for stock as short as 12". The No. 213 is equipped with a stationary table top having all feed works brackets bolted to the top—as is the gear reduction drive. The mandrel rides on ball bearings and is raised and lowered quickly by a hydraulic cylinder. Eight driven rolls feed the stock through the saw at high speed. A 50 H. P. motor drives this unit at full capacity. The No. 213 is a real workhorse, built to handle your toughest jobs.

Available for direct motor, V belt or flat belt drive.

SINKER-DAVIS *Company*

230-250 SOUTH MISSOURI ST. DEPT. 0 INDIANAPOLIS, INDIANA

FOR THOSE HARD-TO-GLUE JOBS

GET A PAISLEY *Scientific* GLUE

WHETHER it's a big pre-fab house or the smallest wood-working operation, there's a *better* Paisley Scientific Adhesive to do the job. Regardless of the *type* of materials to be bonded, the *method* of application, or the *setting speed* required, Paisley will develop the ONE best, most economical adhesive for the specific operation! Get all the facts about these three basic Paisley woodworking glues . . 1. Paisley LIGNOTITE Dry Casein Glues, 2. Paisley fast-setting Liquid Resin Wood Glues, 3. Paisley liquid Animal Glues. Just check the items in which you are interested.

TEAR OUT . . PASTE ON LETTERHEAD AND MAIL TODAY!

- ☐ LIGNOTITE Dry Casein Glues
- ☐ LIQUID RESIN-WOOD GLUE No. 2145
- ☐ LIQUID ANIMAL GLUE
- ☐ ADHESIVE OPERATION DATA SHEET
  (You fill it in and return for FREE laboratory recommendation)

PAISLEY "ACCESSORY" ADHESIVES FOR WOODWORKING SHOPS

FOR BONDING . .

1. Linoleum to wood
2. Cloth to wood
3. Cardboard to wood
4. Plastic table tops to wood
5. Coated fabric coverings and linings to wood
6. Special adhesives for toys, housewares, exhibits, cedar chests, furniture, industrial wood products, repairs, etc.

TELL US YOUR NEEDS

Paisley SCIENTIFIC ADHESIVE SERVICE

PAISLEY PRODUCTS INCORPORATED

1770 CANALPORT AVENUE, CHICAGO 16, ILL. PHONE CANAL 6-2219
630 WEST 51st STREET NEW YORK 19, N.Y. PHONE COLUMBUS 5-2860

Manufacturers of Glues · Pastes · Resin Adhesives · Cements and related Chemical Products

A good man is 5 times as good with a STANLEY-CARTER J5 POWER PLANE

● With the 1 h.p., 18,000 r.p.m. motor and spiral cutter of this powerful power plane, a man can plane up to 5 times faster than by hand. Smooth, waveless surface even against the grain. Won't splinter out. Bevel cuts up to 45° and any size cut from paper thin to 3/16" . . . any width up to 2½". Attachment for sharpening cutter. Bench bracket converts the J5 to a high-speed jointer. Rugged, lightweight aluminum alloy body. Three wire cable at rear, out of way. Beautiful high polish finish. Double pole, momentary contact, safety trigger switch with lock. Metal carrying case for plane, attachments and accessories. Ask about the J5 at your distributor's or write for catalog. Stanley Electric Tools, 542 Myrtle St., New Britain, Connecticut.

STANLEY

Reg. U.S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

A glue plan to fit <u>YOUR</u> needs . . .

ARE YOU A LARGE USER OF RESIN GLUE INTERESTED IN BULK QUANTITIES?
National Casein Company has Tank Car delivery plans for you.

DO YOU USE MODERATE QUANTITIES OF RESIN GLUE—AND ARE YOU INTERESTED IN BULK QUANTITIES?
National Casein has a Tank Truck service plan for you.

ARE DRUMS THE BEST WAY FOR YOU TO HANDLE AND STORE RESIN GLUES?
National Casein has an immediate service and delivery plan for you, in drums.

National Casein's No. 750 liquid resin glue is ideally suited for shipment and storage in bulk or drums . . . 65% solids . . . four months' storage . . . strong, waterproof bonds . . . can be used for hot press, cold press, or high frequency work. Why not submit your requirements to your National Casein man?

He will give you cost and savings on resin glues—whether in bulk or drum quantities. *Your problem will always get a friendly and attentive hearing at National Casein . . . Where we dare you to stump us . . . we haven't been stumped yet!*

NATIONAL CASEIN Company

605-19 West 80th Street, Chicago 20, Illinois • Broad & Fulton Sts., Riverton, New Jersey

Tannewitz BAND SAWS

HIGH SPEED BAND SAW DOLLARS

THE MOST FOR YOUR

VIBRATIONLESS DISC STEEL WHEELS — light, but perfectly rigid—cannot be deflected.

GUIDE POST GEARED AND BALANCED steps up operator's efficiency.

SIPHON DUST DISCHARGE and many other features of superiority, all described in our High Speed Band Saw Bulletin — write for it.

GUIDES WITH REVERSIBLE JAWS give double service.

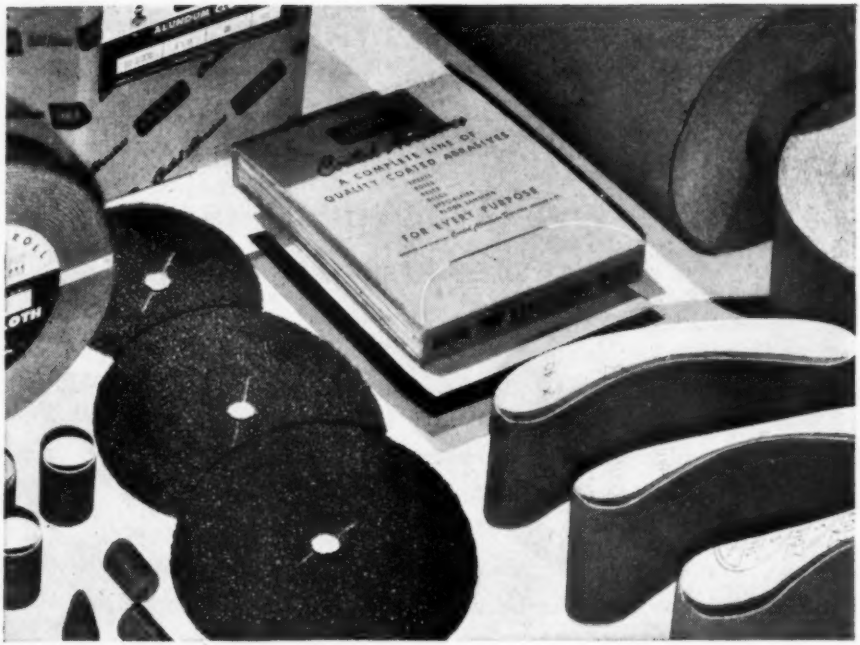
AUTOMATIC TWO-WHEEL BRAKES instantly stop wheels when current is shut off or blade breaks — a tremendous safety feature.

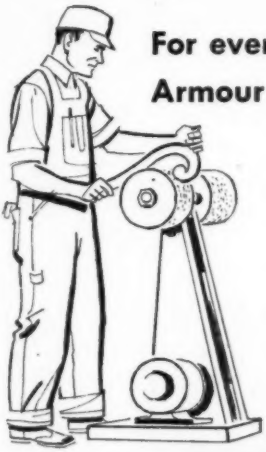
SPEEDI-CHANGE RUBBER TIRES — no bolts or nuts required to hold them in perfect alignment.

The Tannewitz Works is not only the originator and oldest manufacturer of High Speed Band Saws, but today's outstanding SPECIALIST in the manufacture of this type of equipment!

This accounts for the fact that many Tannewitz features which are absolutely essential to securing the maximum advantage of high speed bandsawing, are patented and cannot be duplicated or successfully imitated; that Tannewitz machines are top producers in BOTH QUALITY AND QUANTITY; that the savings they effect quickly liquidate their purchase price. Get the most for your band saw dollars. Write for the complete facts, NOW, and judge for yourself. Simply ask for bulletin "GH". It pays to buy the product of specialists.

THE TANNEWITZ WORKS GRAND RAPIDS 4, MICHIGAN





For every woodworking job in your plant . . . Armour has just the right coated abrasives!

For drum sanding or finish sanding on panels, on odd-shaped pieces, on any stock . . . one of Armour's complete line of woodworking abrasives will fit your need. Heat-Treated Garnet and Electrocoated Garalun, among others, are available in rolls of paper, cloth and combination . . . in sheets for hand sanding, in belts, discs and other specialized forms for every operation.

Contact your Armour representative today!

ARMOUR *Coated Abrasives Division*

Armour and Company • North Benton Road • Alliance, Ohio

MANPOWER SHORTAGE PROBLEMS?

Standard STACKERS

★ SAVE LABOR COSTS AND WALKOUTS

★ INCREASE PRODUCTION PROFITS

THE Standard Green Lumber Stacker and the Standard "Workhorse" are designed to increase production, eliminate labor fatigue, and cut labor costs. They not only require fewer men to do the job quicker, but they also reduce labor turnover because they make lumber handling easy. *They actually pay for themselves in labor savings!* Learn how Standard's scientifically designed stackers eliminate danger, fatigue and extra labor costs.

Write for detailed information, now!

Manufacturers of Internal Fan Kilns

STANDARD

Engineers and Manufacturers Since 1887

DRY KILN COMPANY

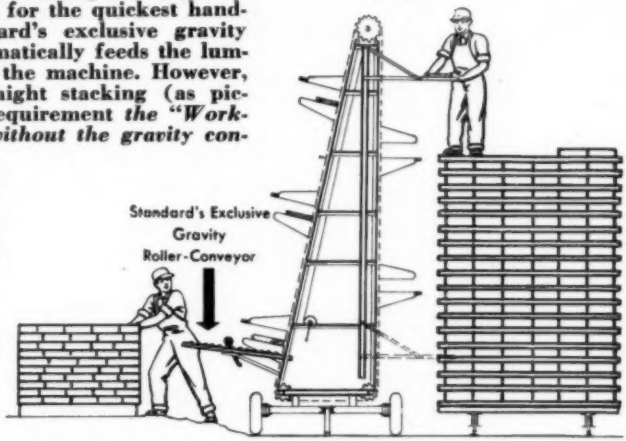
798 S. HARDING STREET • INDIANAPOLIS, INDIANA

THE WORKHORSE

● The gasoline or electric powered "Workhorse" . . . with its reversible drive and movable feed and take-off beds . . . makes lumber stacking or unloading an easy two-man operation. And, for the quickest handling possible, Standard's exclusive gravity roller-conveyor automatically feeds the lumber into the jaws of the machine. However, for yards where straight stacking (as pictured) is the only requirement *the "Workhorse" is available without the gravity conveyor.*

The "Workhorse" is designed for easy portability and conserves yard space by permitting stacks up to 22 feet high.

Standard

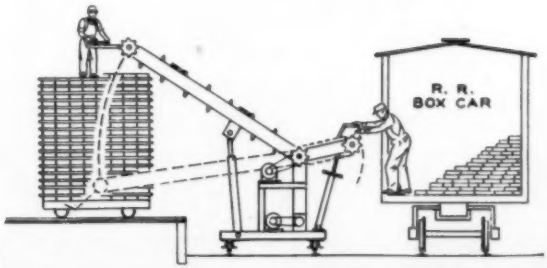


THE GREEN LUMBER STACKER

● Standard's revolutionary Green Lumber Stacker permits quick, easy stacking direct from the freight car or truck. It saves time and eliminates fatigue, because its adjustable hydraulic boom construction places the boards at the stacker's working level . . . enables stacking of two loads at once . . . permits segregation of lengths for cross-pile or end-pile loads.

Shipped assembled, the Standard Green Lumber Stacker is mounted on roller bearing casters for easy mobility, or on wheels for use on kiln track.

Will one of these famous Standard Stackers answer your problem? IF NOT, WE'LL DESIGN ONE THAT DOES!

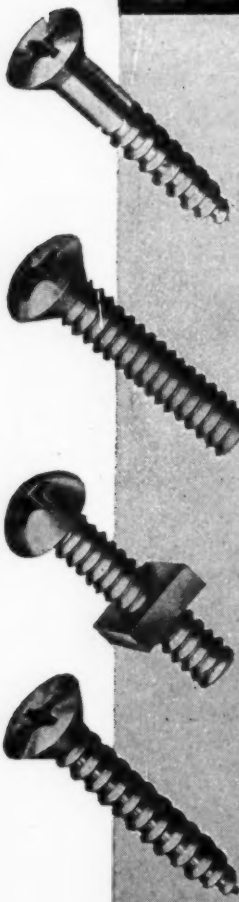


Standard

HOLTITE

Engineered Fastenings

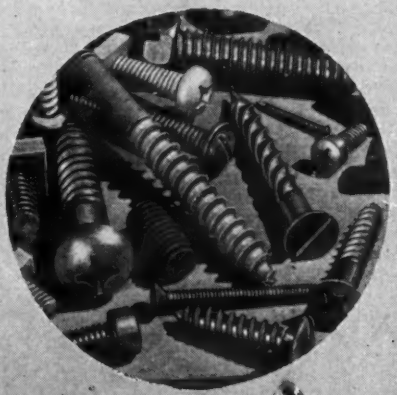
REG. U.S. PAT. OFF.



From raw material to final finishing, HOLTITE fastenings are scientifically engineered and inspected to assure every user of uniform precision and ruggedness . . . precision for quick, cost-cutting application; ruggedness for enduring performance.

Laboratory-tested wire drawn in our own processing mill; clean, accurately formed threads for straighter driving and greater holding power; strong heads to resist breakage, spoilage and injuries; scientifically controlled heat treatment—these are the engineered production-proved qualities that have made HOLTITE the fastening practice in America's leading industrial plants.

We produce every type of fastening in all standard sizes, shapes finishes and heat treatments, with HOLTITE-Phillips Recessed Heads and slotted heads. Specials made to order exact to specifications, blue prints or samples.



CONTINENTAL SCREW CO.

New Bedford, Mass., U.S.A.

SPEED

Your Production! Raise the quality of Your Planing!

No. 380-A
PLANER

THE PRECISION PLANER

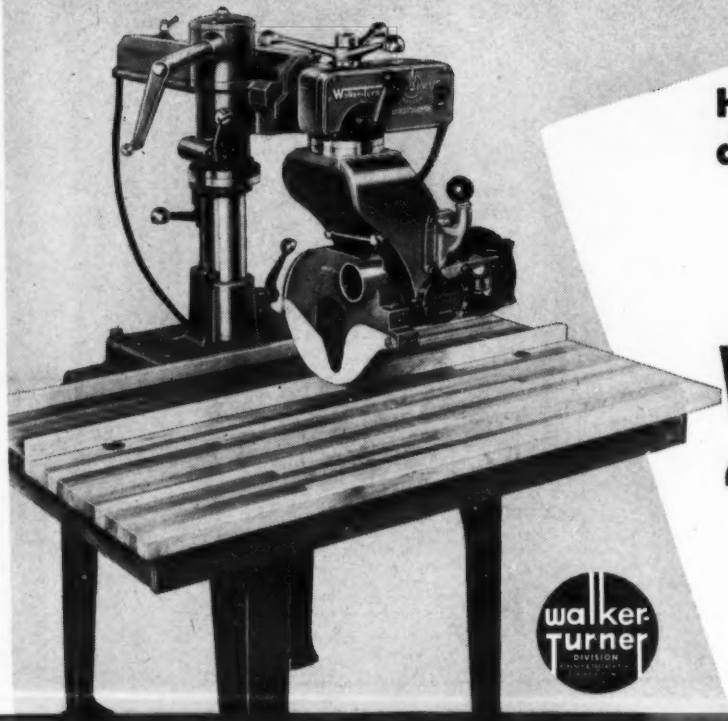
There is NO SUBSTITUTE for Quality! Price alone is never a true gauge of value. Power Planers offer PREMIUM VALUES at standard prices. Eighty-three years of quality manufacturing back our claim to PRECISION WORKMANSHIP. Thousands of satisfied users are our best advertising. The Model 380 Planer is modern—rugged—compact—safe—but, most of all, it's TOPS IN PLANING.

HIGHEST QUALITY SINCE 1867

Planers - Tenoners - Planers & Matchers
Resaws - Band Saws - Power Feed Rip Saws

L. POWER & CO.
2823 Oakford St.
Philadelphia, Pa.
Manufacturers of POWER Machinery Since 1867

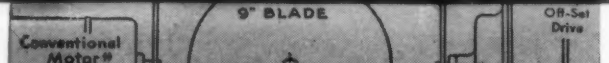
13 POWER TOOLS IN ONE!



Here's a shop machine designed to cut costs

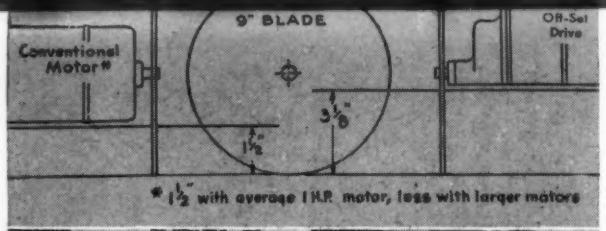
New WALKER-TURNER "900" Radial Saw

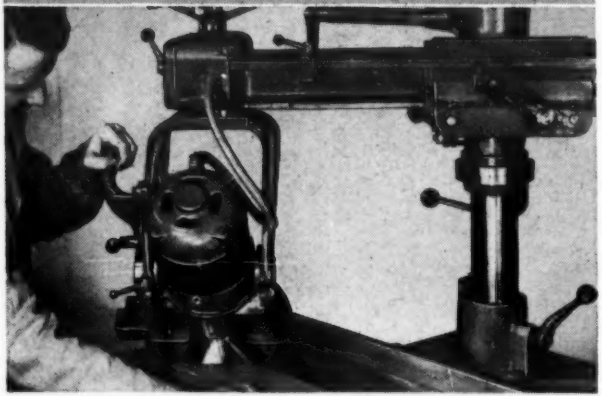
walker-turner DIVISION



Does ALL the Radial Saw Jobs!

Ripping • Bevel Ripping • Bevel Cross Cutting • Dadoing





Don't cut corners—cut costs with a Walker-Turner "900" Radial Saw

SOLD ONLY THROUGH AUTHORIZED DEALERS

KEARNEY & TRECKER MILWAUKEE

WALKER-TURNER DIVISION

PLAINFIELD, NEW JERSEY

Does ALL the Radial Saw Jobs!

Ripping • Bevel Ripping • Bevel Cross Cutting • Dadoing Mitre Dadoing • Shaping • Mitering • Compound Mitering Routing • Cross Cutting • Grooving • Tenoning • Ploughing

CUTS DEEPER—WITH SMALLER BLADE!

Only Walker-Turner's "900" Series Radial Saw cuts 3 1/8" deep with a 9" blade — more than most machines that require a 14" blade. You get greater capacity, use less power.

SPEEDS CUTTING, BOOSTS PROFITS!

Full work visibility (gliding ram leaves work area free of obstructions). No binding, bumping, dodging. Ease of operation and built-in safety features save skilled labor costs.

GET THE WHOLE COST-CUTTING STORY—

Send for new bulletin that tells how the Walker-Turner "900" Radial Saw can help you make more profit on every cutting job. Mail coupon today!

Walker-Turner Division, Kearney & Trecker Corp.
Dept. WD, Plainfield, N. J.
Please send me the new Walker-Turner "900" Series Radial Saw Bulletin

Name.....
Company.....
Address.....
City.....Zone.....State.....

DRILL PRESSES RADIAL DRILLS TILTING ARBOR SAWS BELT and DISC SURFACERS METAL-CUTTING BAND SAWS LATHES SPINDLE SHAPERS JOINTERS

The Black Brothers

VENEER PRESS RETAINING CLAMP

THE DROP FORGED

"SUPERDREADNAUGHT"

The Drop Forged Steel head of The Black Brothers "SUPERDREADNAUGHT" makes it stronger and longer-lasting than the ordinary retaining clamps made of cast malleable iron or cast steel. Drop forging creates a head that is absolutely true to pattern and which will always fit the beam perfectly. The SUPERDREADNAUGHT also has the distinctive Black Brothers design which allows the retainer to grip the beam close to the web so that no undue strain will be brought to bear on the beam flanges. In retainer clamps . . . as in other gluing equipment . . . The Black Brothers build the best.

"If It Is Gluing Equipment - We Have It"

BB

THE BLACK BROTHERS CO., INC.

MENDOTA, ILLINOIS, U. S. A.

Let ★ ★ ★ ★ ★ PATRIOTISM *dominate*

A lumber company of Houston, Texas, the Kirby Lumber Corp., recently advertised with this kind of sentiment:

"The U.S. government's sphere of influence reaches around the globe. Lumber may be needed anywhere in that sphere . . . When the government wants lumber it is the patriotic thing to see to it that lumber comes forth — when and as it is needed . . . So if our supply for domestic use is pinched somewhat, let's let our patriotism dominate our disappointment!"

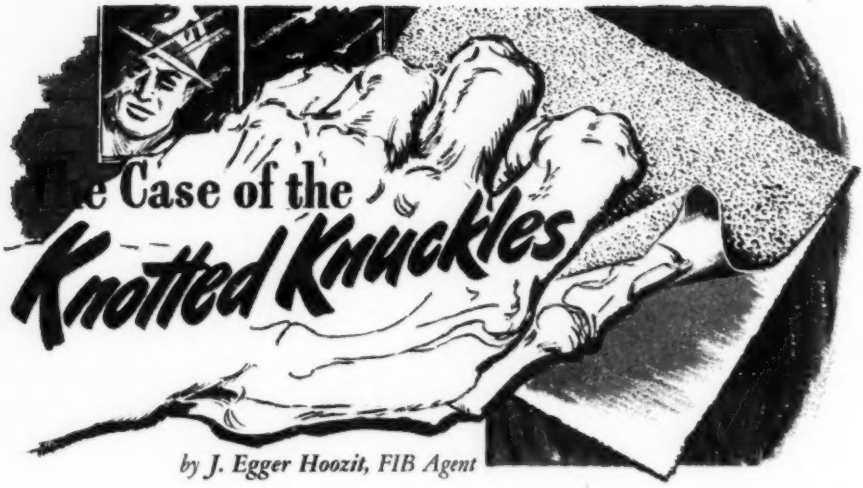
How well that sentiment could be applied to hundreds of other things! The boys whose lives have been sacrificed in death or disability in wartime had little choice. We at home do have a choice. Why not "let our patriotism dominate our disappointment"?

"No man alive understands the many implications of the total conflict," said Secretary of Commerce Charles Sawyer recently. "No man alive can foretell what weapons — mental and material — will be used or the places where the issue will be joined."

Our defense budget is going to be around a quarter of a billion dollars a year for the next decade or so. More taxes and more strain on our economic system. If labor and management will understand and recognize the real need for team work, there need be no lessening of our industrial strength or a change in the pre-war freedom we enjoyed.

Now is the time when individuals, organizations and countries must think in terms of how much they can give rather than how much they can get. This attitude of self-sacrifice will, in the longer view, benefit all of us.

Ned Bailey
Editor-in-Chief



by J. Egger Hoozit, FIB Agent

"FOR years, 'The Case of the Knotted Knuckles' baffled detection until quite by accident as I was walking along Pennsylvania Avenue I noticed a man sanding a Truman cabinet by hand. 'That's it!' I shouted, for there before my eyes were the same knotted joints I had once seen on a knuckle-ball artist. At last I realized that only hand sanding could cause this disfigurement and no amount of hand creme could ever transform them into 'the hands you love to touch you.' It requires a Sand-O-Flex."

Change from hand sanding to power sanding today! Sand-O-Flex brush-backed sanders will do a powerful job on curves and contours in a fraction of the time and with a lot less work for mother. Abrasive strips feed out from a central magazine. When wheel rotates, the brushes mold the abrasive to irregular shapes with a "paint brush" action. Four models for all kinds of sanding; they fit your present power tools. Write or wire for catalog and prices. See your dealer. Merit Products, Inc., 4023 Irving Place, Culver City, California.

Pointed Paragraphs

Are you in line for D.O. (Defense Orders)? Are they going to affect your source of supply? Check up now and find out where you stand. Civilian product orders will have to give way to any tagged D.O. Military contracts are to get the call on many materials which will be priority or D.O. marked (which amounts to about the same thing).

Retail buying has in general returned to pre-Korean war levels. The hectic buyer's rush has slowed down to a walk. Credit controls have had much to do with the situation and if another buying spree does not develop, future controls will no doubt be milder than anticipated.

Remember how the freight car shortage caused so much trouble in the last two wars? One of the industries that is going to get help from Uncle with D.O. will be freight car manufacture.

Canada turns loose their dollar. It now has become a more expensive dollar — that means the same Canadian dollar will now buy more American goods Paralleling this increase in value of the Canadian dollar comes a relaxing of import curbs. Good if you're selling to Canada — not so good if you are buying things from there such as newsprint, aluminum and nickel. It is, however, generally considered a good thing for both countries. There is some speculation as to what effect all this will have on the British pound. Will it also be moved up to our dollar standard?

Here's an idea for the safety department. You'll have to change the product mentioned, but even at that it is good. A mother, when serving her family fish, gives the youngster that finds the most bones a piece of candy for a prize.

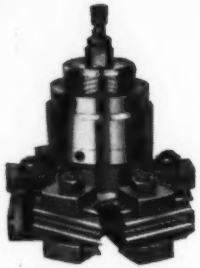
(Continued on page 40.)

Check Your Needs!

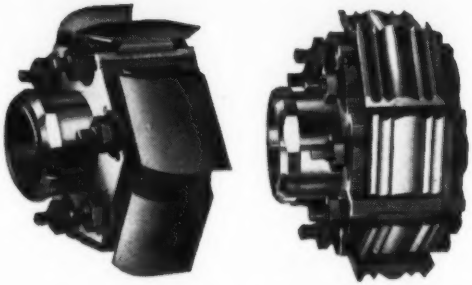
YA CUTTERHEADS

MILLED-TO-PATTERN BITS AND KNIVES

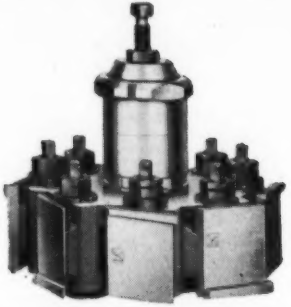
FOR THE MANUFACTURE OF FLOORING, SASH AND DOOR, FURNITURE, NOVELTIES, WOODEN TOYS . . .



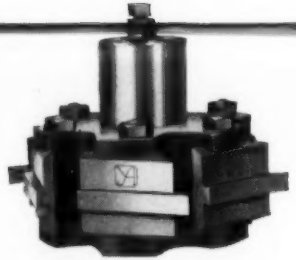
Expansion Matcher Head. Can be furnished with 4, 6, 8 or 10 bits.



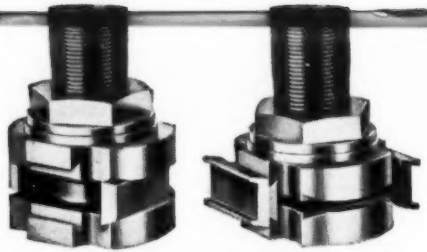
New 200 Series Head. Shown with bits for Pattern No. 105 Siding and "Pickwick" Pattern.



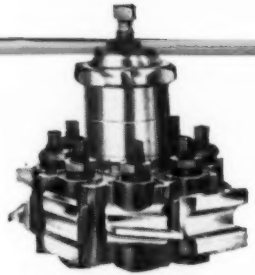
New 200 Series Head. Shown with eased edge bits.



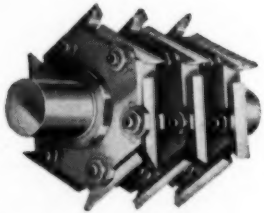
Vise Grip Head. For heavy matching.



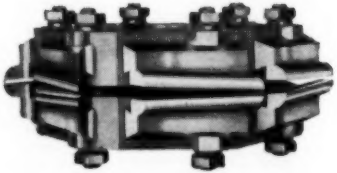
Combination Shaper Heads. Use either milled bits or shaper knives.



New 200 Series Head. With 8 bits for door sticking.



New 200 Series Beader Heads. Furnished individually or 3 heads on a sleeve.



New 200 Series Cope Head. Adjustable for perfect cope fits.

Saw Collars. For individual or multiple saw arrangements.

Yates-American

MACHINE COMPANY—Beloit, Wisconsin

Branch Offices:
Chicago, Illinois
High Point, North Carolina
Memphis, Tennessee
Portland, Oregon

MATCHERS • BAND RESAWS • SANDERS • SURFACERS • CIRCULAR RIPSAWS

(Continued from page 37.)

Jobs for the handicapped are being urged, particularly with the shortage of help felt by so many industries. It is unfortunate that we have to wait for such a labor condition to develop before many of us give serious thought to hiring such unfortunate folk. In our visits to plants throughout the country we have found many using the services of handicapped men and women. In practically all cases, the employer was more than satisfied with the work these people were doing. Why don't you give these folks a job whenever you can?

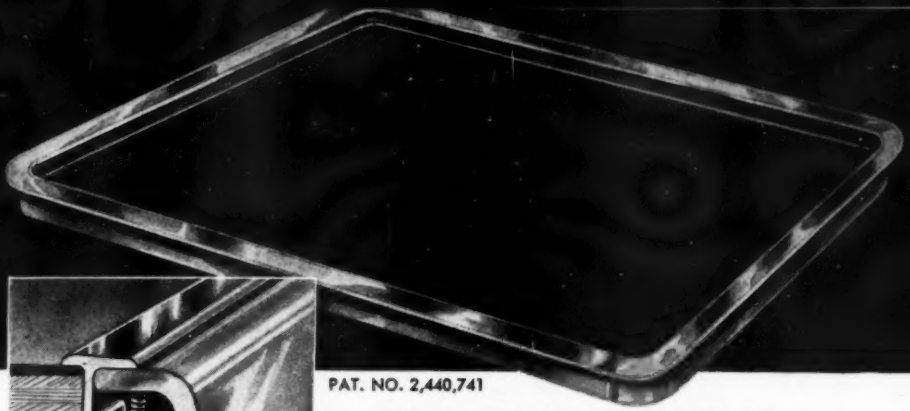
For those of you who live in New England, there is one of the nation's finest organizations, and you should be a member of it. The Northeastern Wood Utilization Council, Inc. is organized for scientific and educational purposes, in forestry, use of forest products and the utilization of wood and wood waste. If you are not a member, or do not get "Wood Notes," get in touch with Edgar L. Hermance, P.O. Box 1577, New Haven 6, Conn.

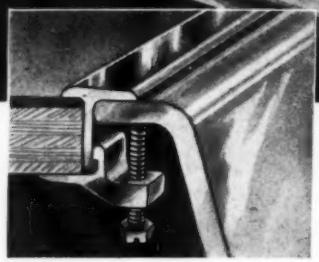
One of the principal reasons why the South is forging ahead is because of cooperation in many major projects. Not the least of these is reforestation. During the 1950 winter and spring season, seedling purchases amounted to $212,749,317 — an increase of 50 million over 1949. H. C. Borckes, secretary-manager of the Southern Pine Association reports that 337 industries participated in this record-breaking reforestation movement in 12 states.

Lofty lumber prices have started to come down and a good many folks are pretty happy about it. How far they will come down and where they will stop is anyone's guess at this point. One of the effects will be the leave-taking of many smaller producers who have entered the production picture in the last few years. With no major plant investment to protect, they're expected to drop out when the going gets tough.

Some of you folks have written and told us about the things you like in WOOD WORKING DIGEST. We're always glad to hear from you. A number have mentioned wanting reprints of the series "Cutting Technique for Wood." This series will be concluded in our December issue. If you wish to purchase some of the reprints, write us and we'll let you know price, etc., when the series is available.

Incidentally, we hope you like our current series on Veneer and Plywood. Another article on savings through proper shipment appears and, we think, a particularly good article on finishing.





PAT. NO. 2,440,741

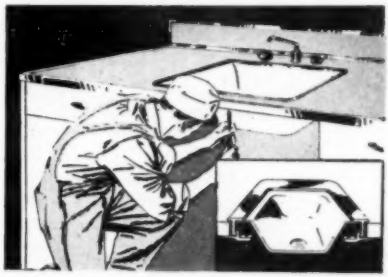
Watertight installations made easy by new ARDEE Clamp-Down Sink Frame!

With the new self-sealing ARDEE Sink Frame (clamp-down type), you always get a permanent watertight joint.

Sink-top coverings can't pop up at the edges with ARDEE. It's handsome aluminum (bright-finished or anodized to order), is installed in a jiffy, outlasts the sink-top itself. No need to scribe perfectly . . . frame overlaps covering by 1/4". And when sink-top or bowl repairs are needed, it's simple to unclamp and lift out ARDEE.

The lugs interlock with the frame to hold the sink and counter covering securely in place. (ARDEE comes in sizes for plywood tops of 5/8", 3/4", 7/8", 1" with coverings from 1/32" to 1/8".)

Leading kitchen equipment makers speed assembly and improve their product with ARDEE Clamp-Down Sink Frames.



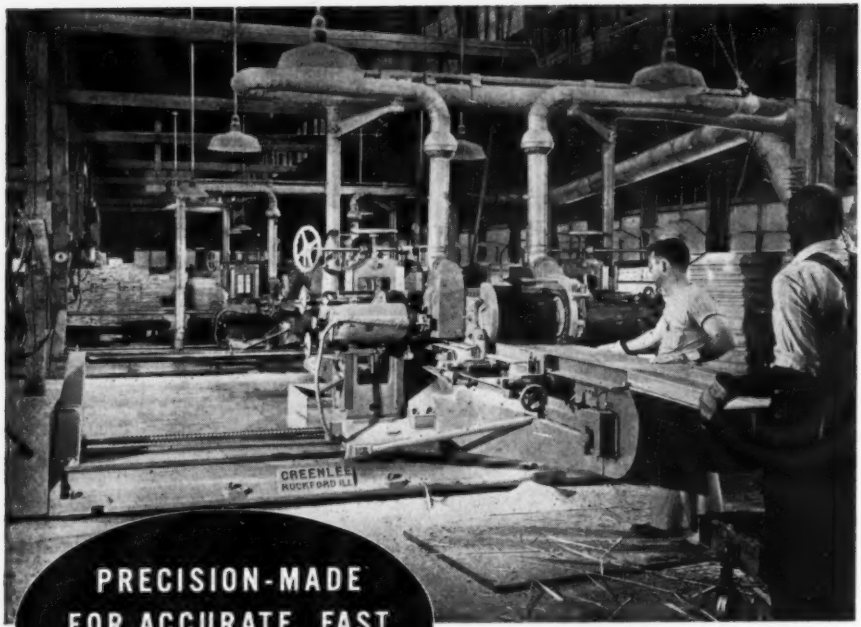
FREE! Catalog and price list of ARDEE Clamp-Down Sink Frames (and fold-down type).

Made by the makers of famous

ARDEE Clamp-Down SINK FRAMES Chromtrim

ANOTHER R. D. WERNER PRODUCT

R. D. WERNER CO., Inc., Dept. WD, 295 Fifth Avenue, New York 16, N. Y.
R. D. Werner Co., (Canada) Ltd., Oshawa, Ontario



GREENLEE DOUBLE CUT-OFF SAW IN OPERATION AT STATESVILLE PLYWOOD AND VENEER COMPANY

PRECISION-MADE FOR ACCURATE, FAST PRODUCTION

...Greenlee No. 542 Electric Double Cut-Off Saw

"We wish to congratulate you on the fine double-end trim saws recently placed in operation here. They show beautiful workmanship and they really do a fine job."

That's what Mr. Elbert M. Shelton, president of Statesville Plywood and Veneer Company, Statesville, N. C., has to say about their new GREENLEE No. 542 Cut-Off Saws.

Reasons are many why the GREENLEE No. 542 does such smooth, accurate work . . . and at high speed! First is because each one is made so sturdily . . . built to handle the work with ease and stand up under production requirements at high speeds for a long, long time.

Next is its "watchwork like" construction and the precise setting arrangement which permits making adjustments to a fraction of 1/64". Accurately graduated dials show the exact setting of the movable housing, and the machine cuts exactly to the size indicated by the dials.

And remember, too, the GREENLEE No. 542 is extremely versatile. In addition to its double cut-off operations, with attachments it will handle your shaping, relishing, tenoning, dadoing or scoring.

Get all the details on this precision machine today. Write Greenlee Bros. & Co., 1871 Twentieth Avenue, Rockford, Illinois.

MACHINERY & TOOLS
GREENLEE

GREENLEE WOODWORKING MACHINERY: MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING and BORING TOOLS

Keen edges ARE THE ANSWER TO *keen Competition*

BY E. T. LARSON • SALES ENGINEER • NORTON COMPANY

GRINDING WHEELS, although they have a limited application in woodworking operations, are about as indispensable as salt in a stew. With the widespread use of high speed steels and the increasing use of cemented carbide in woodworking tools, the proper selection and application of grinding wheels assumes a position of great importance to the manufacturer or woodworking shop that is faced with keen competition.

Cutting tools such as machine knives, formed cutters and saws are all sharpened with bonded abrasive wheels. In the case of cemented carbide knives and cutters, diamond wheels may be the most economical means of restoring a keen cutting edge.

In the sharpening of woodworking tools of any kind, coolness of cut is perhaps the most important factor to consider. Excessive heat resulting from the use of too hard a wheel or the wrong grinding technique can easily damage an expensive cutter. Wheel life, always a significant factor in production grinding operations, is of secondary consideration in tool and cutter grinding.

Selecting the Wheel

The several factors to be considered in selecting the right grinding wheel for a job are: (1) type of abrasive, (2) grit size, (3) grade or hardness of wheel, (4) shape of wheel and (5) speed of traverse.

Aluminum oxide is the manufactured abrasive most often used in tool sharpening wheels. Of the several varieties of aluminum oxide, the purest form (which is white in color) is usually preferred for sharpening steel and cast alloy tools. There is another form of aluminum oxide made by a completely new manufacturing process which produces a still sharper cutting abrasive crystal. This new abrasive was introduced in 1946 by Norton Company under the trademark, 32 Alundum. One of the primary advantages of this new abrasive is its inherently faster and cooler cutting action, so important in tool sharpening.

The numbers designating grain size represent the number of openings per linear inch in the screen used to size the abrasive grain. Commercial sizes range from 10 (coarsest) to 240 (finest). The grain sizes commonly used for tool sharpening wheels, lie between 46 and 80.

The grade of a grinding wheel is a measure of its resistance to wear. In the ideal condition, the bonding material which holds the abrasive grains in place while they cut releases the grain on the cutting face of the wheel as they become dulled from contact with the work. New, sharp cutting grains are then exposed to the work.

Knife blades should be clamped securely in the grinding machine.

If the grade of wheel is too soft, the weakly supported cutting grains are released before they have become dulled, resulting in excessive rate of wheel wear. On the other hand, if the wheel is too hard, the dulled grains will be held in place too long and heat will be generated by the rubbing of these grains against the work. When this happens, it is necessary to remove the dull grains with a dressing tool to expose new, sharp grains on the face of the wheel.

In knife grinding, the grade of wheel is influenced by the width of the knife's bevel, the thickness of the blade, and the type and hardness of the steel. As a general rule, the wider the bevel, the thinner the blade, and the harder and more heat sensitive the steel, the softer the grade of wheel should be.

The shapes in which grinding wheels are made are many and varied. The manufacturer of the grinding machine usually specifies the size and shape of wheel for various tool and cutter grinding operations.

The bevel of the blade also determines the shape of wheel to be used. Veneer knives, which require a straight or nearly straight bevel, are best ground with a cup wheel. Planer knives on the other hand may have a slightly concave bevel. These can be ground with either a straight or a cup wheel. For grinding certain formed cutters, a dish-shaped wheel may be best.

There is sometimes a tendency to hurry a knife grinding job, especially when trying to remove defects such as

Sharpening a circular saw with a straight wheel, found to fit the tooth shape.

Hand stoning a machine knife after grinding.

cracks and nicks which usually involve considerable stock removal. The operator may be tempted to use heavy depth of cut, a rapid table traverse, or a combination of both. However, every grinding wheel has its cutting capacity beyond which lies trouble in the form of grinding heat.

In the matter of feed and traverse speeds, experience is still the best guide. On long runs, such as on machine knives, it is usually more economical to take a light cut with a fairly rapid traverse than to take a heavy cut with a slow table speed. On the last two or three passes, a keen edge can be obtained by taking a very light cut with a slow traverse. Any burr that might be thrown by the wheel should be removed by hand, using a fine India oilstone. Care should be taken to hold the stone flat against the bevel and to employ very light pressure.

One of the questions which sometimes arises is whether to grind wet or dry. Hardened and tempered alloy steel knives should be ground wet. A good flow of coolant should be directed on the work near the point of grinding contact so as to keep the knife cool throughout the grinding operation.

Use of Diamond Wheels

One of the difficulties in grinding cemented carbide tools is that the material itself is almost as hard as the hardest available manufactured abrasive, namely silicon carbide. The abrasive grains are dulled rapidly and consequently the grade of the wheel must be relatively soft and the rate of wheel wear correspondingly high. For this reason, many manufacturers have found that bonded diamond wheels, in spite of their higher initial cost, are in the long run more economical to use for grinding carbide tools because they will outlast silicon carbide wheels many times over.

Because carbide cutters and saws stay sharp so long between grinds when used in woodworking operations, little statistical information is available on the economics of diamond wheels versus silicon carbide wheels for the woodworking industry. From the experience of tool room men in the

Grinding a machine knife at Worcester Saw Works.

metalworking industries, however, it appears that the diamond wheel is destined to become indispensable to toolrooms throughout the woodworking industry.

Some General Pointers

Some of the general hints which might be mentioned with regard to machine knife grinding are as follows:

1. The grinding machine should be rigid and mounted on a firm foundation.

2. A better edge is produced by grinding **against** the edge than off the edge. Grinding off the edge tends to throw up a burr which must be stoned off and furthermore, there is more danger of burning the edge.

3. To insure a straighter and more accurately ground edge, the knife should be clamped flat and securely to the table or chuck.

4. Use a relatively coarse grit, soft grade, cup wheel such as a Norton 57A36-18VBE (vitrified Alundum) or its equivalent.

The End

PLANT MAINTENANCE CONFERENCE

An 18-point program of plaint maintenance techniques has been set for discussion at the Plain Maintenance Conference to be held in Cleveland in January, it was announced by Clapp and Poliak, Inc., exposition management. The conference will take place during the first three days of the Plaint Maintenance Show, Jan. 15-18, 1951, inclusive, at the Public Auditorium in Cleveland.

General conferences will discuss preventive maintenance such as inspection procedures, records, reports and training for maintenance work. The second day's general session will be devoted to organization and management for maintenance. Eight sectional conferences also will be held.

DO YOU DEMAND THE BEST KILN DRIED WOOD FOR YOUR PRODUCT
to minimize checking, warping splitting, distortion, other costly waste

SAVE MORE WITH

The finest in Specification drying of Western woods, Hard and Soft Domestic and Imported Woods FOR AIRCRAFT, TECHNICAL AND REGULAR USES...

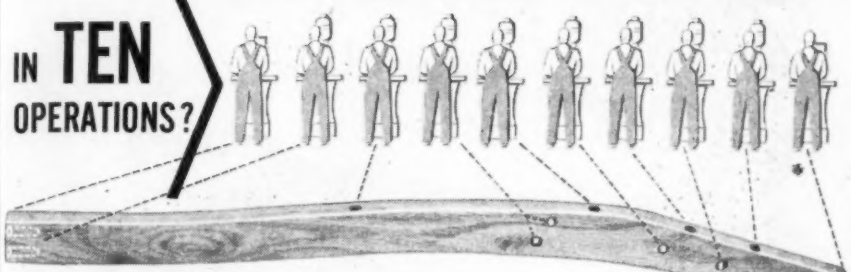
Resawing, Surfacing, Pattern Cuts, Smooth-end trim.
Save on dry freight weight vs. green. Pattern items cut waste, freight. Transit rates on R.R. shipments.
Delivered, ready to use—Saves manpower, time.
Each order dried, handled, and shipped individually.
5 automatic C.C. Kilns operated by Trained Engineers.

"SPECIFICATION" CUSTOM KILN DRIED WOOD

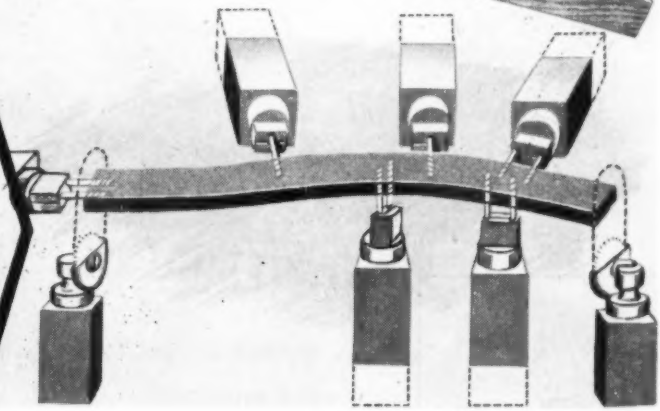
LUMBER MANUFACTURERS Inc.
2538 S.E. STEELE ST.
Cable Address: Lumac
Long Distance—SU 1101
for Gordon Wilkinson, Pres.
PORTLAND 2, OREGON

How would you bore this post?

IN TEN OPERATIONS?

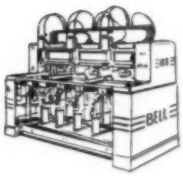


..OR ONE OPERATION, WITH A BELL No. 100!



Compare your present production rate with speeds of 20 posts a minute on the Bell "100" . . . see just how much your costs would be sliced! And these savings are not limited to long runs. Set-up time averages under 18 minutes, making short-run savings, too.

You'll save on assembly time, for all holes are bored at one time—always in perfect alignment. Handles both front and back posts, table-leaves and many other jobs. Write for complete data.



BELL WOODWORKING MACHINERY

THE BELL MACHINE CO.
71 Jackson Drive
Oshkosh, Wisconsin

Choose EXPERIENCE *with* FOREST CITY !

DOWEL BITS AND DRILLS

FOREST CITY

The right kind of experience is important — practice in making better tools — knowledge in solving wood cutting problems. Better cutting qualities — longer tool life — come from this kind of experience. They are *included* when you specify Forest City Tools. This Is Our 61st Year Of Service To The Woodworking Industry.

CALL YOUR LOCAL DEALER

Forest City Tools are handled by all leading distributors. Call your local dealer, or write for a copy of our latest catalog.

FOREST CITY BIT & TOOL COMPANY

1210 KISHWAUKEE ST. • ROCKFORD, ILLINOIS

HOLLOW CHISELS AND BITS • MACHINE BITS • PLUG CUTTERS

MACHINE DRILLS • COUNTERSINKS • AUGER BITS • ROUTING TOOLS

WOOD ENGINEERING IN SCOTLAND

By David Murray

WOOD, IN ITS natural state, has not the precise and measurable properties demanded by the engineer, who works to fine limits. Even when dried and seasoned, either by the vagaries of the weather or by the indifferent devices of man, it changes with the seasons and with its conditions of use. It warps and distorts, expands and contracts, weakens and grows strong, according to temperature, humidity and general environment. And all the different trees of the forest have their own foibles, not only in themselves, but also from the root to the top, and from the sunny to the shady side. A wooden cloth yard, accurately graduated in Glasgow, would give short measure in the dry heart of the Sahara and over measure in the damp valleys of Burma. A straight edge in London might bend like a bow in some other place. That is why working with wood has remained a craft ever since savage man improved on nature by fashioning the branch or trunk of the living tree into weapons, tools, boats, roof trees or simple ornaments.

Woodworking as a Science

The production and planning engineers of H. Morris and Company, Ltd., of Glasgow, who have made woodworking into an engineering science, even the boss himself, would be the first to admit that timber from the saw mills is not a material which can be measured and processed with exactitude and the certainty that it will keep to its dimensions. Their main job has been to give wood the regular qualities of metal.

Their instruments have not just been planning and production schedules, drawing boards and machine tools, but physics and chemistry. Using scientific data, they treat, cut down, build up and finish their wares in the same climatic environment as that in which the product will ultimately be used. For this their chief apparatus is the drying kiln. Careful drying practice wipes out, as far as is humanly possible, the changes which may take place between the time and place of production and the time and place of use.

Then, to cancel out the differences between species and pieces of wood, they marry one bit to another with glues and adhesive plastics. Using the principle of lamination, forces pushing or pulling in one direction are held in check by forces straining in another. Lamination of wood is, of course, no new idea. But the Morris wood engineers maintain that they practice lamination with scientific precision. And indeed, at all stages in their large Glasgow factory—through the drawing office, the planning division and the workshop—woodworking is handled along advanced engineering lines. That the firm can make ordinary wooden furniture as well as the next, both with the Old and the New Look, can be seen in its show rooms, where reproduction period pieces jostle with the latest notions from Continental designers. But they have carried their

One example of new ideas and methods in furniture construction is dining room furniture using a process perfected as a result of research in construction of laminated helicopter blades. The process is used to make the curve in chair arms. Furniture is made from laminated Honduras mahogany and Canadian betula, bonded under high frequency electrical pressure with phenoformaldehyde. Markings resemble markings on helicopter blades.

purpose far beyond the scope of cabinet making and carpentry.

Raw Material Conditioned

Because they lack storage space, in the heart of Glasgow, they take in their raw material in the form of sawn timber and veneer. From the first moment it is handled with extreme care. Before going forward to the job, every piece of timber is conditioned in a drying kiln designed on the experience of 40 years. Wet steam is the agent, to avoid any tendency to "case hardening." The processing gets to the heart of the timber and gradually conditions are brought to the exact point to match with the final climate of use. As the main batch is going through, test pieces are "cooked" in a small test oven to furnish control over the major kilning. When the timber comes out of the dryer a close check on humidity and temperature is kept all the way through the factory. On that, as much as on fine-limit machining and fitting, is based the company's proud claim that it can furnish a liner or hotel with 1,000 suites, every one alike, and every drawer of which will run smoothly years after, when the contract is a matter of business history. It is a case, so they say, of never forgetting fitness for purpose. To give a few technical points, the specially designed kiln is fed by transfer cars operating on rails between the conditioning sheds and the kiln itself. In the summer steam comes from a horizontal boiler which contrives to get along with little more than the wood waste from the various shops. In the winter a vertical boiler, using coal, is brought into service. In the matter of scientific control, balance is the key instrument, samples being weighed and weighed again until the timber settles at its desired moisture content.

Machine Setups

In the shops, many of the machine tools have been built or modified to

This piece by H. Morris and Company, Ltd., shows the interesting decorative effects achieved with wood grains.

the company's own design. With something like monotony, the "only machine of its kind" in the country is pointed out. And the factory has one great advantage over the ordinary metalworking engineering factory where the heavy tools must usually be bedded down on concrete. Given sufficient warrant, the machines themselves can be moved about to suit the production schedule. This is facilitated by electric junction boxes, spaced about every 10'. The firm has a model of the floor space and of every machine, and these can be arranged in trial form for any desired production sequence. This is a big help to the planning division, who need not, if the job is big enough, twist their ideas to fit in with the existing layout. It begins to be seen that woodworking has its advantages on the machining side. And, harking back to the kiln, the wood worker can use his waste as fuel while the metal worker has to lose time and energy getting rid of the scrap.

Importance of Planning

The power house of the whole plant, in the managerial sense, is the modern planning and drawing office, as modern as the goods which go out of the workshops. Every job is considered and scheduled in detail. After the first drawings and prototypes are approved, the various units, methods, routings and costings are detailed. To assist and check the written or typed word, component sketches are set against each item.

From the schedules a complete picture of the job can be visualized: units, total parts, operations, machines and jigs. The jigs and special tools are made in a jig and toolroom on the premises. Final instructions are not passed to the works before a complete re-check is made on all calculations and methods. In every case the machinist gets an actual sample of the work allotted, and a set of gauges is provided for regular testing. Nothing is left to chance or to the whim of the individual worker. When the job is going through the shops, the planning staff men attend regularly to watch progress and look out for possible adjustments.

Pre-planning is a feature of the production departments as well. The production floors are laid out in working

bays, with passages and gangways marked by broad white lines, to warn against encroachment on vital areas. This is essential, because internal transport is by electrical truck and stacker. Limited as to area in a congested industrial district, the factory rises to three levels above the ground floor. Of necessity the inter-floor handling is carried out by hoist and this calls for trucks rather than conveyors which are usual where production is on one level.

The entire plant is highly mechanized, though not yet to the point in view. Many of the machines are electrically operated and air controlled. In fact, maximum use is made of pneumatic power, a soft power medium suited to working in wood.

In the main shop the units include automatic cross-cut saws, straight line edgers, planers, tenoning machines, multiple spindle borers, with special tools for doweling, shaping, cutting and delivering. The key equipment, however, is that dealing with laminated and compressed wood, the one being pressed at 1,500 lb., the other at 3,500 lb. per square inch.

Restaurant furniture by Morris. Note contrasting table top.

Advantages in Laminating

Lamination, at both low and high pressures, has answered many of the problems of the day — increased production, shortage of material, need for new materials with new strength relationships. It is easier and quicker to dry, season and condition several thin boards than one thick one. Not only that, but the conditioning is more uniform, a supreme consideration where the whole aim is towards uniformity of texture. Working with thin boards widens the bottle neck created by the drying kiln. Then the system, allied to other practices, economizes in wood. This is best shown by an example: for the cabin doors of the two "Queens," wood battens of various lengths were glued, side for side, into a flat core. To save weight, balsa went in the middle and a harder wood along the edges, to take screws for the fastenings. Laminated veneer was then clapped on either side. With a decorative facing, this made a handsome, solid-looking door of very light weight. The blockboard construction saved a dead weight of 25 tons on each ship for doors alone.

As for new materials and methods of construction, one need only be reminded of the "Mosquito" airplane. This astonished not only the Germans, but the more conventional aircraft designers. It depended on what the Morris people call "block-board," a core of light balsa, with a smooth skin of laminated wood. This offered the combination, unbeatable in an aircraft of this kind, of extreme light-weight, rigidity and minimum surface friction. The Morris concern used the same general idea in making the lifting rotors for the big British helicopter, "Air Horse." These measure about 25 feet from hub to tip and are about 2 feet across. They have to be balanced to a quarter of an ounce in weight, and must give a very even tor-

Saddles or scoops any shape or size of chair seat.

McKNIGHT NO. 1-E

AUTOMATIC SADDLE SEAT MACHINE

SIX TO TEN SEATS PER MINUTE

CONTINUOUS PRODUCTION HOPPER FEED

The McKnight No. 1-E Saddle Seat Machine cuts six, eight or ten seats per minute. It is the highest speed and most efficient saddle seat machine manufactured. Stock is carried from the hopper to the cutting head by a steel chain. Motor, 10 HP, 3600 R.P.M., ball bearing type. Cutting Head runs at 5000 R.P.M., is mounted in ball bearings. *Write for further details.*

Manufacturers of Combination Horizontal and Vertical Boring Machines — Trimming, Chucking & Boring Machines — Single Drum Sanding Machines — Corner Block Machines — Chair Clamps — Notching Machines — Single End Tenoners — Bending Equipment (including Steam Boxes, Pumps, Benders) — Mortisers.

McKnight Machinery Company

Chair and Woodworking Machinery

GARDNER, MASSACHUSETTS, U. S. A.

que. That means fine limits in building up and finishing. Compressed wood forms the main stem, the profile being generated by a laminated shell. The hub connection is made up of parallel metal plates, bonded to the wood. This shows the great versatility of the lamination idea, which has long ago been extended to cover steel reinforced timber, wood veneered metal, moulded ply and fire and waterproof laminations.

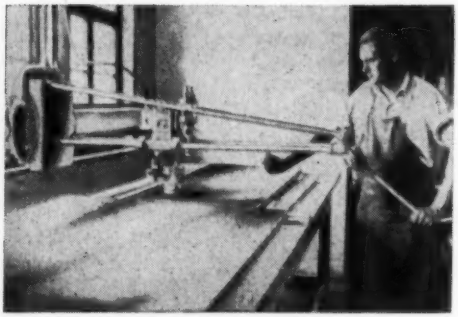
Lamination Assembly

The wood ply, peeled from many species of timber, is brought in. Though it is often very thin, down to 1/80th of an inch, it can be joined edge to edge or piled in laminations with equal facility. With the right choice of adhesives, the joint is stronger than the wood itself, and all is done without a touch from the hand of man.

For lamination assembly, the sheets are spread with glue and laid out on aluminum platens. These are inserted in a large hydraulic hot press, the usual treatment being at 1,500 lb. per square inch pressure for 15-20 minutes. A cold pressure unit is also in use, while a smaller hand press serves for small assemblies which would not justify space or time in the bigger presses. For moulded jobs the firm makes all its own jigs. The auxiliary machines are many and various, too many to detail here. However, it may be stated that the company has designed and built a special drawer-fitting machine, powered by compressed air, and among the lesser units, a special upholstering machine for chair seats, also actuated by air. It has, too, ventured far into the field of high-frequency adhesion. This offers great advantages by cutting down time from hours to minutes, but for some jobs it is still uneconomic. The company has also developed con-

FESTO Polishing Machine

Better Polishing In Less Time



Improve The Finish And At The Same Time Save Money

FESTO Special Woodworking Machines

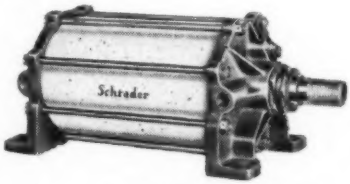
745 51st Street **Brooklyn, N. Y.**

ARE YOU IN ANY ONE OF THESE 3 GROUPS?

- ☐ I have never used compressed air in connection with woodworking.
- ☐ I have made some use of compressed air for woodworking but do not know all of its possibilities.
- ☐ I know nothing about the application of compressed air to woodworking.

If you are in any one of these 3 groups, learn how you can save time and money with compressed air devices, and the increases you can realize in production and safety.

Here are a few of the hundreds of new and improved Schrader Air Control Products. Schrader distributors will gladly show you how you can benefit through their use.



One of Many New Air Cylinders

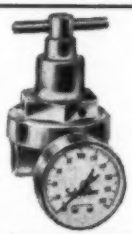
One of the New Air Clamps

New Hand Lever Valve

Improved pilot valve for remote control—can be timed.

New quick exhaust valve for emptying cylinders rapidly. Speed up cylinder operation.

Air Line Lubricator for automatically lubricating cylinders, chucks, clamps, etc.



Air Pressure Regulator for reducing air pressure and holding it uniform.

Write for complete information and literature on Schrader Air Cylinders, Valves, Air Line Lubricators, etc. If interested in hundreds of other Schrader Products such as Blow Guns, Hose Reels, Air Line Couplers, Press Controls, etc., write for 72-Page Catalog.

Schrader
PRODUCTS CONTROL THE AIR

A. SCHRADER'S SON

51 **Vanderbilt Ave., Brooklyn 17, N. Y.**
Division of Scovill Manufacturing Company, Incorporated

veyor methods of assembly, chiefly in the utility furniture ranges. With a handful of mixed labor, the assembly line on chairs can turn out 600—800 a day. It may be said that the Morris firm undertook "utility" work rather reluctantly in response to official pressure, but once taken up it gets the benefit of over 40 years' specialist experience. END.

A.W.P.A. 1951 MEETING

The 1951 annual meeting of the American Wood-Preservers' Association will be held in Chicago at the Stevens Hotel from April 24 to 26, President Fred W. Gottschalk has announced.

This 46-year old scientific society convenes once a year to discuss developments in wood preserving techniques which make poles, railroad ties, lumber and other forest products resistant to decay, insects, and fire. A large attendance, estimated to be more than 700, is expected at the 1951 meeting.

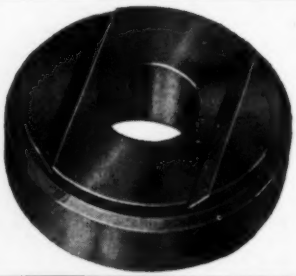
THE CHICAGO MARKET

It is suggested that those planning to attend the 1951 Furniture Shows in Chicago make their reservations at once, direct with their favorite hotel. The scheduled dates for the Winter Market are January 8-19, and for the Summer Market, June 18-27, 1951.

KNIFE GRINDER BULLETIN

Dependable Machine Company, designers and manufacturers of woodworking machinery, announce the release of Bulletin C-4, a new, four page folder which features eight knife grinders of the 21 models being manufactured. The bulletin fully illustrates the machines in still and action shots.

Free copies of Bulletin C-4 with latest price sheet may be obtained by writing Dependable Machine Company, Greensboro, N. C.



IMPROVED Ball Bearing Shaper Collars

Friction between collar and pattern entirely eliminated — no more burning.

Outer rim is independent of the slotted collar and revolves with the feed of the work.

Collars can also be supplied without grooves for use with solid steel cutters.

Give diameter of collar and size of hole.

GUSTAFSON & SCOTT MFG. CO.
1637 Lowell Avenue Chicago 39, Illinois

DO YOU WANT TO RECEIVE THE **WOOD WORKING DIGEST** EACH MONTH? SEE THE INSERT IN THE BACK OF THIS ISSUE.

DEP

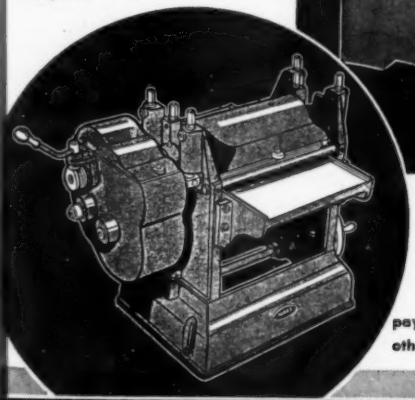
Novem

PARKS PLANERS

20" THICKNESS PLANER

The Parks No. 20

A modernly designed, low-priced, high-speed 20" x 6" planer that meets the surfacing needs of every type of woodworking shop. Ruggedly built for vibrationless operation—assuring quality work, increased production and low operating costs. Provides two feed speeds —20 and 40 F. P. M. and 40 and 80 F. P. M. Four-knife cutterhead has speed of 3600 R. P. M. Complete descriptive literature on request.



12" THICKNESS PLANER

A compact, sturdy machine that offers mill planer precision and ruggedness at a sensationally low price. A real heavy-duty 12" x 4" planer that can pay for itself in savings effected through the salvage of otherwise waste stock. Write for descriptive catalog sheet.

The PARKS WOODWORKING MACHINE COMPANY

Manufacturers of Quality Woodworking Machines Since 1887

DEPT. 20-AM 1546 KNOWLTON STREET, CINCINNATI 23, OHIO

UNICEL
FREIGHT CAR
may help transportation crisis

This story is interesting to our readers for two reasons. Manufacturers of wood products do much of their shipping by rail. Here is a new freight car that should promise better shipping. Secondly, the new type of construction and greater use of wood will interest all concerned about efficient use of forest products. WOOD WORKING DIGEST sent a representative to attend the premiere of the Unicel car and we are glad to present some of the details. You will probably be hearing more about this new car.

THE FAST, SAFE, low-cost mass transportation of goods is today one of the top problems facing industry, from manufacturer, through distributor, down to the retailer.

The great bulk of our goods—whether it be raw material, equipment or finished product—moves by railroad. And the Korean crisis, the high level of general business activity, plus the fact that many of the 1,727,873 freight cars now in service on Class I railroads are outworn, adds up to what the Interstate Commerce Commission and the Association of American Railroads have termed "a first class tranportation crisis, a crisis that will require a minimum of 122,000 new cars by August 1951, to solve it."

Answer to a Crisis

October 16 there was shown for the first time, a new, revolutionary railroad car. The new car, called the Unicel car, is full of meaning to the entire lumber industry. It is described by engineers as the likeliest answer to the crisis yet to appear and the first major improvement in railroad freight car construction since 1899. The car is a combination freight-refrigerator car built by the 53-year-old Pressed Steel Car Co. following three years of research and experimentation. It was unveiled before an audience of top leaders of industry, railroad officials and government representatives on the private underground railroad siding beneath Park Avenue's towering Waldorf-Astoria Hotel in New York City.

John I. Snyder, Jr., president of Pressed Steel Car, emphasized that the car was built not of steel like conventional cars but, except for its undertruck, entirely of cellular laminates—plywood panels bonded grain-against grain by tough plastics under tremendous radio frequency energy. The Synder Chemical Corp., Bethel, Conn. supplied the adhesive. Synco 128-CLW was used to weld the components into an integral unit of strength and durability. Following principles used by engineers in building the Navy's P. T. boats and the British Mosquito bombers during World War II, the Unicel car's floor, ceiling, side and end walls are actually molded to tough-but-light plywood. The result is a one-piece structure, stronger than steel for this use.

Unicel freight car by Pressed Steel Car Co. 1) plywood molded and pressed under electronic energy into a single unit structure; 2) powered by Diesel fuel enroute; 3) by electricity at sidings and warehouses; 4) less shifting and Unisorb floating draft sill; 5) rubber sleeve mounted to car's end-couplers reduces shocks; 6) smooth flush interior door and floor construction; 7) cannot pick up dirt easily and is washed down quickly.

The car is of "monocoque" or single-body, stressed-skin construction wherein floor, walls and roof are figuratively welded together into one, completely rigid unit structure. Plastic face Douglas fir plywood panels are glued to either side of lightweight framing members to form the inner and outer walls, floor and ceiling, i.e., structural skin. The panels make the car completely rigid and act integrally with framing members in bearing weight and stresses, distributing these forces throughout the car. In contrast, the outer walls or siding of conventionally built cars merely hangs as dead weight upon the individual framing members which must bear loads and stresses.

Floor covering for the revolutionary cellular-laminated refrigerator and freight car produced by Pressed Steel Car Company is Masonite ¼" tempered Presdwood.

Approximately 320 square feet of Tempered Presdwood, screen side up to provide a non-skid surface, are laid in each car. Selected because of its toughness, its splinter-proof quality and its great load-bearing strength, the tempered hardboard can be replaced after long service.

Inside width of the car is 9'-2"; inside height, 10'; inside length, 50'-6". Outside width, 10'-3"; outside height, 13'-7". The car's volume is 4,556 cu. ft.

The plastic surfaced plywood panels used in the Unicel car are one of the newer products of the West Coast plywood industry. In addition to offering weight ratio greater than that of structural steel, splitproofness and durability —the plastic face panels also have a smooth, hard, wear-resistant plastic

face bonded under great heat and pressure to one side of the panel. The plastic surface, like the phenolic resin adhesives used to bond the individual plys, is completely unaffected by water or weather.

Thermex high frequency dielectric heating equipment, product of the Girdler Corporation, Louisville, Ky., was used in bonding the plywood.

No newcomer to the nations' rails, in the past 20 years Douglas fir plywood has been used in the building or rebuilding of 100,000 refrigerator cars, box cars, mail cars and cabooses.

Each car uses 4,500 board feet of plywood. Small pieces as well as large ones can be used.

The Unicel combination car uses 20 tons less steel in its construction than conventional cars, Mr. Snyder said. He pointed out that this will help to relieve the severe production burden the defense emergency has placed upon the steel industry, while at the same time not delaying the nation's car-building program.

The industrialists and rail officials who attended the car's premiere showing were most interested in these points:

General Advantages

Most important, the new Unicel car will carry both refrigerated and unrefrigerated loads more safely, cleaner, cheaper and better. The one car has been built to serve all needs—can go in one direction with a refrigerated load, and return with an ordinary load. This all-purpose usage gives the shipper and the railroad an all-time record car capacity, with 40% more floor area. Most of the difficulties faced by shippers and railroads as the result of the worn-out, outdated rail equipment they've had to work with will just not occur in the Unicel.

Handling Costs

The Unicel car will sharply cut costs of handling many railroad shipments. It will permit the extensive use of fork-lift trucks and pallets which heretofore could not be used widely on most standard cars. Unicel permits this because its doors are wider, making it easier to get in and out. A demountable floor-rack made of special steel alloy enables fork-lift trucks to move about inside the car easily, during loading or unloading. The floor-rack makes for greater safety too, its non-slip treads lessening the chance of human injury.

Damage

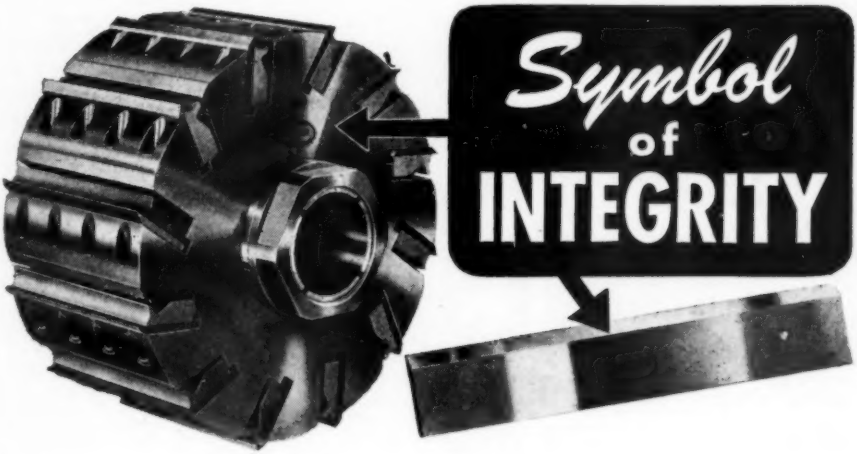
The Unicel will help cut damage to rail shipments. (The Class One railroads' bill for damage to lading was over $135,000,000 in 1949). Lessened vibration in the Unicel will mean that many delicate articles ordinarily damaged in shipment, will travel with complete safety.

Capacity

Cubic capacity is at least 50% greater over that of the conventional car for most shipments. Conventional cars have a 40 to 50 ton capacity as against the Unicel's capacity of 65 tons (because of its rounded corners, its ability to be loaded clear up to its ceiling, its 50½ foot length compared with the conventional car's 40 feet). Yet the Unicel weighs less though carrying far more then the conventional car.

Sectionalizing

A new dunnage device called "Unistrapping" means that loads can be sectionalized and broken down into units which can be easily loaded and unloaded in less than carload quantities. Shippers handling several items will be able to sectionalize loads. This will also enable shippers to strap loads tightly, eliminating a breakage of cartons and their contents, due to the shifting of the load. This new method of steel strapping, makes it possible for a shipper of less-than-carload shipments to tie in his shipment securely with a gate that extends the full height of the car.



The BADGER Trade-mark stands for dependable quality of product . . . a consistent policy of fair dealing . . . years of specialized skill and experience devoted to a single purpose . . . personal interest in your tooling problems . . . a keen sense of responsibility for your complete satisfaction. All of these *plus values* are yours when you specify BADGER Knives and Cutter Heads.

CUTTER HEADS
BADGER
KNIVES

Engineers to the Woodworking Industry

WISCONSIN KNIFE WORKS

BELOIT, WISCONSIN

A5827—1P—AAA

SLASH GLUING COSTS

STEP UP PRODUCTION IMPROVE QUALITY WITH GLUETOOL

Gluetool is an air pressure cold glue applicator with leak-proof, hand-grip automatic control that applies glue with an accurate, even flow. Twice as fast, twice as easy as other methods. Cuts hand sanding time. Trouble-free.

Spreader heads for every operation—doweling, grooving, mortising, flat spreading, etc. Tanks of varying size to accomodate one to 8 operators. Write and get the facts.

ORDER NOW

INSURE QUICK DELIVERY

GLUETOOLS, Inc.

1928 N. Meridian St. Indianapolis 2, Ind.

Uniformity of Temperature

Tests show that Unicel has a far greater uniformity of temperature than the conventional car—2 to 3 degrees Fahrenheit in contrast to the 10 to 12 degree variance normal in conventional cars. This temperature-constancy makes for added lading protection. The "cold-wall," plus the natural qualities of the cellular one-piece structure, prevents the condensation of moisture on the ceiling which drops down on lading, often spoiling it. This will inhibit mildewing and the deterioration of wood shipped from mills in its green form.

Cleanliness

The fact that the entire interior surface of the car is one smooth piece, with rounded corners and no holes or cracks to catch dirt, means that it is easier and faster to clean. Since its walls resist picking up and absorbing brine or salt given off by some products, goods transported in the Unicel cannot absorb any harmful substances or odors. The body cannot rust, ending the possibility of uncleanliness from this source.

Construction

Unlike conventional cars whose strength depended upon the strength of its individual members, all based upon a center sill of steel, Unicel is a functional unit which derives its strength from its shape, using wood scientifically to its highest efficiency. Sides, floor and top are actually molded together by radio frequency energy. This produces a single organic structure something like the Stratoliner, Constellation and other multi-engined planes.

The Unicel car has no center sill. Thus, instead of bearing all its impact on a center sill, the Unicel distributes the stresses and strains it gets on the rails evenly throughout its entire body. As a result, though far lighter, it is much stronger. Since its stresses are spread through the entire "skin" of the car, the entire "skin" of the car works in carrying the load. The conventional

car carries its freight primarily on the car bottom, the sides and top being used essentially for enclosure rather than for protection.

Highlights of plywood's use in railroad car building include the advance type box car introduced in 1944 by Great Northern Railway Company. Weighing two tons less than cars of other construction, these cars used plywood inside and out. Initially, GN constructed 1,000 cars and introduced "the most modern freight train" of 106 of the plywood cars plus a modern all-plywood caboose. Since then, the firm has built additional thousands of the plywood cars.

Recently built plywood railroad cars include the 1250 plywood reefers built by Pacific Car and Foundry, Renton, Wash., for Northern Pacific and Pacific Fruit Express. In these cars, plywood was used for interior lining, inner walls and bunkers. Other long-time plywood users among transcontinental lines include: Chicago, Milwaukee, St. Paul and Pacific (since 1936); Union Pacific (since 1936) and Denver & Rio Grande (since 1939). Lines pioneered the use of plywood in refrigeration include: Morrell Refrigerator Line (since 1939) and Pacific Fruit Express (since 1941).

The Pressed Steel Car Co. reported that a third car is planned for particular use in the shipment of lumber. It is to have 41 feet of door space on each side in a 50-foot car—something that engineers previously considered an impossibility. This car will permit the loading and unloading of vast quantitis of lumber, hardboards and other building materials.

The End

Intuition is that gift which enables a woman to arrive instantly at an infallible and irrevocable decision, without the aid of reason, judgement or discussion. —**Ralph Bellamy**

Starrett "Skip-Tooth"

FOR CUTTING HARDWOODS, SOFTWOODS, FIBRE, PLASTICS

If you want fast, clean, **easy** cutting, try this new Starrett "Skip-Tooth" Band Saw Blade. Watch it breeze through any hard-to-cut material. Special "Skip-Tooth" design plus hard edge and flexible back permits clean, high speed cutting at all times. **NEVER NEEDS SHARPENING.** Holds its keen cutting edge until completely worn out . . . outlasts several ordinary blades . . . saves all resharpening and resetting expense.

TRY THIS NEW SAW

You'll never go back to ordinary band saws. Buy through your distributor . . . or write for Bulletin ("WW") which gives complete information.

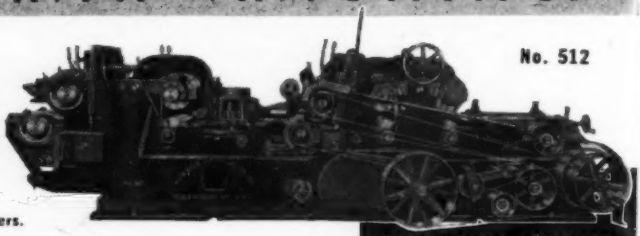
Regular Wood Band Saws Also Available

Made By The World's Greatest Toolmakers

THE L. S. STARRETT COMPANY
ATHOL, MASSACHUSETTS

NEWMAN MACHINES

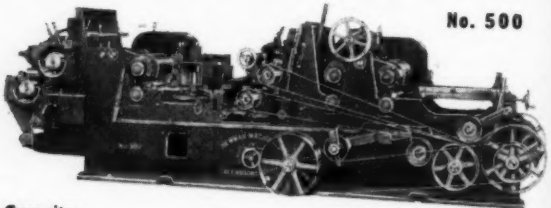
Newman



No. 512

Capacity: 16" and 24" wide, 8" thick.
Speeds up to 325 feet per minute.
8" dia. cutting circle.
Six 12" dia. feed rolls.
Single and double profilers.

BALL and ROLLER BEARING PLANERS AND MATCHERS



No. 500

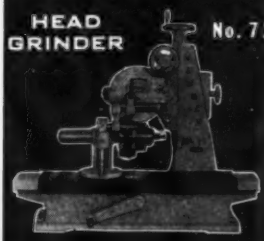
Capacity:
14" and 24" wide, 6" thick. Speeds 40 to 200 feet per minute. 7" cutting circle. Six alloy steel feed rolls. High carbon special alloy steel cylinders. Single or double profilers.

ORDER NOW FOR EARLY DELIVERY

ALL NEWMAN cylinders or heads are DYNETRICALLY BALANCED insuring an accurate and superbly finished product.

The ball bearing NEWMAN 71 (shown below) will grind all sizes of cutter heads. Table is 33" long by 9" wide with horizontal travel of 25" and is heavily ribbed to maintain accuracy over entire travel. Maximum cutter head swing is 11".

HEAD GRINDER **No. 71**

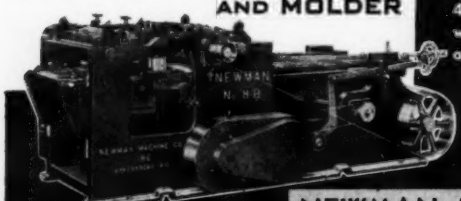


Ball and Roller Bearings

No. 55 AUTOMATIC PINEAPPLE FEED TABLE

The NEWMAN 55 feeds stock automatically to high speed planers and matchers up to 450 lineal feet per minute. Capacity: 30" wide, 8" thick. All adjustments and controls are centrally and conveniently located.

No. 8-B PLANER, MATCHER AND MOLDER



The NEWMAN 8-B planes 22" wide and 8" thick, joints 4" thick and will match 14" wide. 6" diameter feed rolls. Speeds of 30, 50 and 75 feet per minute.

MAY WE SEND YOU FULL DETAILS?

Unsurpassed for work in small and medium mills

NEWMAN MACHINE COMPANY, INC.
GREENSBORO, NORTH CAROLINA, U.S.A.

Major problems and trends ***in KILN DRYING LUMBER*** *in the west*

BY JOE STEEL

SO MUCH HAS been written and said about kiln drying that it is scarcely necessary to repeat that proper kiln drying eliminates many defects commonly found in lumber which does not undergo this process.

Freedom from casehardening is important to the factory or moulding operator who wants lumber that will resaw straight without cupping or bowing. The customer is also interested in straight, flat lumber. The common grades of lumber and items such as knotty pine finish must be dried so that lumber is free from knot holes. Lumber also must be dried so as to preserve the full mechanical strength.

Now for the subject of dry kilns. A lumber kiln can be briefly defined as a large room of wood or masonry construction, designed for holding stacked lumber loads, where the lumber can be subjected to drying conditions utilizing controlled temperatures and relative humidities, and with sufficient circulation to secure uniform drying.

History of Drying

Lumber dry kilns are the result of development nearly as old as the sawmill industry. It was formerly the practice to pile lumber outdoors or in sheds for drying. Because of the slow drying and variations in drying due to uncontrolled weather conditions, the kiln was developed to secure quicker turnover of dry lumber. Early development in lumber kilns consisted of smoke kilns. This was simply an elevated dock on which lumber was openly piled and walled in with vertical boards. A fire was built in a pit beneath the pile. The heat from the fire ascended through the pile of lumber, producing more or less drying.

Later developments were along the line of steam heated kilns to reduce fire hazard. Up to World War I, most of the kilns consisted of natural draft kilns with heating pipes located under the loads of lumber. World War I brought on developments in kiln drying, particularly for spruce lumber for aircraft construction. The development of the water spray kiln and subsequent improvements of the external blower kiln and the perfecting of instruments for controlling temperatures and humidities in dry kilns followed in close order.

The early installations of dry kilns in the Inland Empire consisted largely of natural draft kilns. In the early 1920's

Modern control room (partial view) of Moore cross-circulation kilns, showing Autographic Recorder Controllers for precision control of drying elements in each kiln.

external blower systems of kilns were installed. In the late 1920's, kiln development turned toward internal fan kilns which produced features of reversible circulation and greater volume of air circulation, which in turn, gave better drying on lower temperatures.

Drying of Pine

Demands on kilns for drying high moisture content ponderosa pine lumber at large lumber operations brought about development of the finest kilns in this country. The large pine operators quickly realized that lumber products, when properly kiln dried were better than the usual air drying, and turned almost entirely to dry kilns for seasoning their lumber output.

The proper drying of high moisture content ponderosa pine lumber demands circulation rate through the lumber of 300 to 500 feet per minute. Because the water leaves pine lumber rapidly, it was necessary to have kilns with large ventilating capacity. Reversible circulation of air through the loads of lumber produced more rapid and more uniform drying. Development of water sprays and steam reconditioning treatments also have done a lot to remove prejudice against kiln drying lumber from the old time lumberman. With the development of modern and efficient kilns, also development in lumber handling equipment such as automatic lumber stackers, automatic unstackers, transfer cars and efficient plant layouts, it is usually less expensive to run lumber through kilns than employing the older air seasoning methods on the yard.

The medium as well as small mills also are concerned with dry kilns. The large mills set the standards which must be approached as closely as possible by the small mills both in drying, machining and quality of product. Small mills have in the past been operating for limited periods during the year. In order to keep down operating costs and also reduce inventory and capital re-

Moore cross-circulation kiln at Welch Planing Mill, Midvale, Utah. Unit packages of lumber are stacked directly on dry kiln trucks for moving in and out of kilns.

FULL-AUTOMATIC YET LOW IN PRICE!

HANCHETT

DN KNIFE GRINDER

SMOOTHER - MORE FLEXIBLE CONTROL FINER FINISHES

with the new Electrically-controlled Table Drive

A MASSIVE MACHINE made in sizes up to 108" work piece capacity.

HIGH-PRECISION CUTTING EDGES and LONGER-LASTING BLADES

from new permanently-aligned Knife Bar

Write for complete data "WW-110".

COVEL SAW SHARPENERS • HANCHETT KNIFE GRINDERS

HANCHETT MANUFACTURING CO.

World's Largest Manufacturers of Saw Sharpening and Knife Grinding Machinery

Main Office—Big Rapids, Michigan **West Coast—Portland, Oregon**

quired to operate their businesses, it has been found desirable for the small mill to operate through as long as possible during the year.

The small mill without kilns is limited to definite or local markets as they are not in position to dry and ship their lumber to various eastern markets. The small operator with limited timber supply and operating capital is usually forced to install kilns, but of necessity their kiln buildings and kiln equipment and lumber handling arrangement must be simpler and less expensive than can be afforded by the larger mills. Due to limited daily production the kiln drying costs for a small mill are of a necessity considerably higher than at larger operations.

Drying of Redwood

The Redwood lumber producing region of Northern California has one of the most difficult drying problems on the coast. Redwood lumber gives up its water content very slowly. Redwood lumber is also susceptible to kiln degrade, known as collapse, or breaking down of the cell structure of the wood if too high drying temperatures are employed. The Redwood operators usually make it a practice to segregate their light grades of lumber produced from top logs in the tree, for separate kiln drying. This segregation can ordinarily be handled directly through the kilns, taking an average of 10 days to dry 1" lumber. One inch boards cut from the butt or sinker logs may require 25 to 30 days, if the lumber is handled directly through kilns from the sawmill.

The current Redwood drying procedure, however, is to air dry lumber in unit packages handled with either crane, mono-rail or lift truck for a period of one to six months and then finish by drying in the kilns.

Experimental Work

There has been much experimental work done on the kiln drying of lumber during the past decade. Some of this work has been done under the direction of the Forest Products Laboratory at their plant at Madison, Wis., or in their field offices in collaboration with various lumber operators. The Western Pine Association also set up an experimental kiln in cooperation with the Brooks-Scanlon Lumber Co. at Bend, Ore. There has been much talk of electrical heating of kilns. Due to the large amount of heat required for evaporating water from lumber, it is usually not practical, due to the high cost of electric power, to dry such lumber as ponderosa pine, hemlock or Douglas fir. Several small electrically heated kilns have been installed at factories, or in connection with plants for gluing up lumber. Electronic applications of internal heating to certain thick, high priced lumber might have some possibilities, but drying development has not proven out on extensive commercial scale.

Some experimental work has also been done on chemical seasoning. It has been found that certain chemical processes present possibilities in drying certain types of lumber. These processes, however, require elaborate investment in equipment and skilled personnel for operating. These demands make it quite impractical for the ordinary sized sawmill to consider much in the way of practical benefits from drying developments along the lines of chemical seasoning.

For lumber yards or small factories requiring auxiliary kiln drying facilities, a number of satisfactory kiln arrangements have been worked out. Regular type kilns, built with limited holding capacity, and designed for heating with 5 to 10 pounds steam pressure from automatic boilers have worked out very well for drying woods that are partially air dried before loading into kilns.

There has also been development in tunnel kilns for seasoning certain

CONTOUR SANDING

with a National Sander

National's Model 300 two-pad, reciprocating, straight-line action air sander is ideal for contour sanding. Equipped with molded rubber pads, this machine sands curved surfaces as easily as flat. For different operations, seven easily interchangeable pads are available. You will save time in filling, sealing, and rubbing if you use the 300 for all operations. The vibrationless National Model 300 will increase production and give a better finish.

Write for Details Today

NATIONAL NS SANDERS

NATIONAL AIR SANDER, INC.

2820 AUBURN STREET, ROCKFORD, ILLINOIS

grades of lumber. Tunnel kilns employing high air velocities have been employed for years in drying thick veneer. Common grades of lumber, such as Fir common, can be handled through a tunnel kiln on temperatures ranging from 120 to 130 degrees. In a tunnel dryer, it is possible to remove the moisture from the lumber, but it is only possible to control drying conditions at one point in the tunnel. The tunnel kiln does not usually employ sufficiently high temperatures to set the pitch in lumber for factory work or dry the lumber to sufficiently low moisture content for many purposes. Tunnel kilns are very susceptible to outside temperature influence and usually operate most effectively during the warm periods of the year.

During the depression years, a modified type of kiln known as side loading kiln was developed. This arrangement of kiln is usually a room where lumber is handled into and out of the kiln rooms employing fork lift trucks. These side loading kilns have application at small lumber yards where there is limited space for kiln installation and where the demand for kiln drying is not too exacting.

The large mills have found definite benefits by sorting lumber for moisture content before drying. The usual practice at large mills is to sort lumber for species, thickness and somewhat for grade. Other mills are finding that by sorting the heart from the sap that better drying and faster drying can be secured in their kiln drying operations. For example, 1" No. 1 common sap ponderosa fine boards ordinarily require 60 to 72 hours in a modern kiln to dry to the required 12 to 15% final moisture content. One inch No. 1 common fine boards, cut from the heart of a large tree, might have only 30 to 40% original moisture content and when segregated will dry readily in a kiln in 16 to 24 hours.

5 BASIC UNITS IN 1 PLURALITY

OILSTONE GRINDERS

With one Mummert-Dixon Plurality Oilstone Grinder you get (1) Coarse Oilstone Wheel, (2) Fine Oilstone Wheel, (3) Grinding Cone, (4) Leather Stropping Wheel and (5) General Grinding Wheel. Made in 3 sizes to meet every grinding and sharpening requirement in woodworking plants. Designed for hard and long usage. Efficient. Easily accessible. Investigate Mummert-Dixon equipment now. Send for informative literature today. No obligation.

MUMMERT-DIXON CO.

124 Philadelphia St., Hanover, Pennsylvania

Development in kilns has been along the line of increased volume of air recirculated inside the kilns. Large diameter fans are also coming into use, as these large fans deliver a greater volume of air with less electrical horsepower input than smaller sized fans used in the past. Kiln buildings are also made wider, to reduce the air pressures against which the fans operate, and also to give more uniform distribution of air through all the sticker courses from top to bottom of the loads of lumber.

The large mills can afford investments in lumber stackers, unstackers, power transfer cars, and other lumber handling machinery to reduce the manual effort and expense of handling their lumber to and around the kilns. This mechanical equipment usually makes it possible to stack lumber for the kilns at a much lower cost per thousand than is possible when piling in the yard. Unstacking operations are also largely standardized at the large mills.

There is definite trend among the larger operators to install plenty of kiln drying capacity and employ moderate temperatures and more air circulation to improve their kiln dried products.

Kiln processes for final steam reconditioning treatment of lumber in kilns before the lumber is removed makes it possible to relieve stresses and equalize moisture from the inside to outside of the boards. Water sprays and low pressure steam conditioning sprays have been developed which make it possible for the average kiln operation to turn out kiln dried lumber products that will satisfy any reasonable demand of the lumber user.

The trend for medium capacity mills with 5 to 10 years timber supply has been to install small double track or multiple track kilns. These kiln buildings

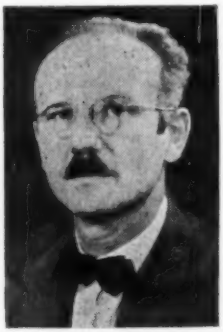
I Can Help You To

BE A WOOD PRODUCTION ENGINEER

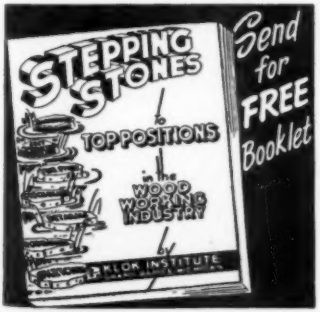
Learn At Home In Your Spare Time

With THE FAMOUS KLOK TRAINING COURSE

I've helped a host of ambitious men to attain top positions in the furniture and woodworking industry. I'll help you if you'll just give me the chance. My 81-Lesson Home Study Course or my Resident Course at Grand Rapids is highly personal and teaches you the arts of Sketching — Drafting — Rod Making — Time Study — Cost and Production Scheduling. Free G.I. instruction. Money back trial offer to non-veterans. Get the complete facts — then judge!



JOHN H. KLOK, Pres.



John H. Klok, President
KLOK INSTITUTE
154-L Louis St., Grand Rapids 2, Mich.
Kindly send me your FREE BOOKLET for
☐ HOME STUDY SPARE TIME COURSE
☐ RESIDENT COURSE AT KLOK INSTITUTE, Grand Rapids
☐ Veteran ☐ Non-Veteran
Age..... Occupation.....
Name .....
Address .....
City..... Zone..... State.....

can be housed in a wood building, or combination of construction such as concrete block for the walls and wood for the roof. At these medium sized sawmills the kiln drying operations usually employ unit package system of handling lumber around the kilns. With lift truck equipment, the units can be properly stickered for the yard, and after partial air drying, delivered to the kiln for drying. Dry units of lumber are handled over tilting hoists which feed the lumber to the planer, and the stickers are automatically dropped out of the package onto collector belts.

Another development with medium sized mills is that of employing extensive air drying facilities on kiln tracks preparatory to loading into the kiln. This pre-drying is most effective in the pine regions, particularly during summer.

Problems of the Small Mill

Small mill operators are handicapped in their kiln drying operations due to the limited volume going through the kilns. Because of the necessity for maintaining boiler plant at the average kiln drying operation, it is necessary to dry at least 10 to 20 thousand board feet per day in order to secure reasonable kiln drying costs. The small operator because of limited life must of necessity use simple type wood buildings. These buildings are subject to rapid deterioration and insurance rates are sometimes prohibitive.

The small operator must of necessity employ hand methods for stacking lumber which adds to the unit drying cost. The very small kiln operator in order to commercially dry lumber must of necessity employ an automatic boiler fired with oil or gas in order to keep the labor costs within reason. A possible solution to the drying problems of small mills is to work through concentration yards in certain areas where the volume of lumber going through

GAYNES UNIVERSAL

POWER FEED
MULTIPLE BORING MACHINE

CHECK ALL THESE FEATURES:
Individual ball bearing motor driven spindles.
Micrometer adjustment of each spindle for depth of bore.
Spindle capacity is 5/8" in hard wood, and 1" in soft wood to a depth of 3".
Variable power feed giving from 300 to 900 pieces per hour.
Power feed is arranged for continuous or intermittent operation.
2 spindle radial head to bore from 3/4" to 1 7/8" centers can be mounted on any spindle assembly.

Send for Complete Details

Gaynes ENGINEERING CO.
1713 W. Lake St., Chicago 12, Ill.
Phone: HAymarket 1-3061

the kiln can be of such capacity as to install adequate kiln facilities and employ trained personnel so as to efficiently handle the drying operations.

The kiln drying problems of every group of sawmills must be studied from various angles. The average operator will be ahead to employ experienced engineering and construction service and employ methods that have been tried and proven in similar sized operations. The standards for kiln dried lumber should be raised instead of broken down in order that the lumber industry may survive the growing competition from new and competitive building materials.

Mr. Steel is associated with the Moore Dry Kiln Co. at their North Portland, Ore. plant. The material presented here is from a speech he made at a Northwest Wood Products Clinic.

The End

Friendship is a tree of slow growth.
Crosby Clipper

MARKET DATES

Chicago Winter Market	Jan. 8-19
Grand Rapids Market	Jan. 8-19
Carpet Fashions Opening	Apr. 2-12
National Sleep Show	Apr. 16-28
Midsummer Market	June 18-28

ENGINEERING COMPANIES TO MOBILIZE

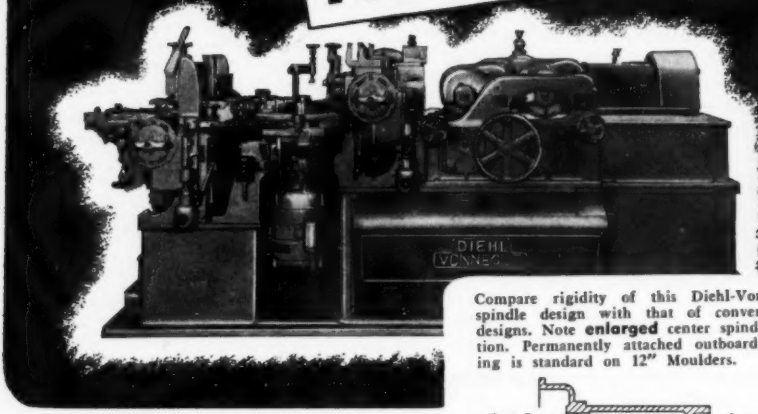
A general mobilization meeting of engineering companies will be held in Detroit, December 12. Sponsored by the National Association of Engineering Companies, the meeting is open to nonmember as well as member companies.

The industry comprises some 1500 companies in the United States who do engineering or design work on either mechanical products, machines, or tools or who do production, process or methods engineering.

At the meeting, advisory committees representing all engineering companies will be organized to cooperate with various government agencies in line with the 1950 Defense Production Act.

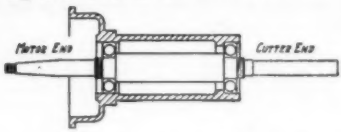
HIGHEST QUALITY — MASS PRODUCTION
WOOD Carving Machines
AND AUTOMATIC PROFILERS
TOOLS SALSTROM SUPPLIES
CARVING
MACHINE COMPANY
4117-23 KINZIE ST. CHICAGO 24, ILLINOIS

Heavy cuts . . .
High speeds . . .
Precise work . . .



The DIEHL-VONNEGUT 12" 4-head, all-electric Moulder. Also offered in 4", 6", 8", 10" and 12" 5-head sizes.

Compare rigidity of this Diehl-Vonnegut spindle design with that of conventional designs. Note **enlarged** center spindle section. Permanently attached outboard bearing is standard on 12" Moulders.



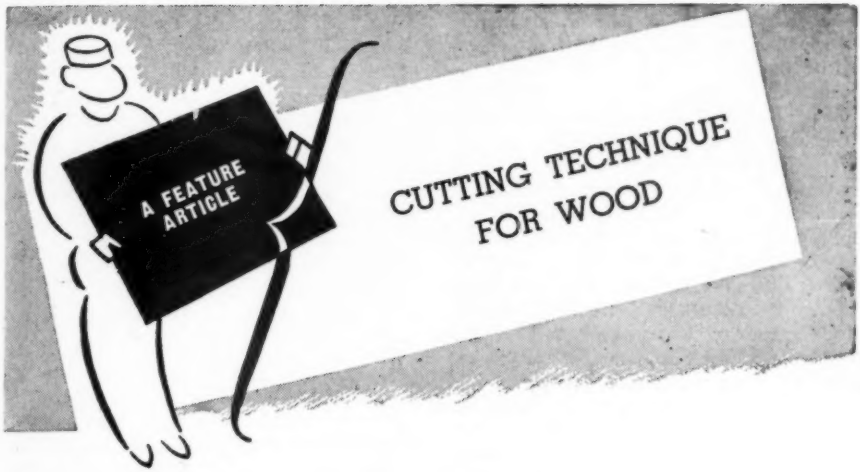
• No spindle whip at faster speeds . . . no spindle whip with heavier cuts. This **vibration-free** performance of the exclusive Diehl-Vonnegut Moulder **Spindle** is one of several reasons why this machine is the standard for the industry.

The Diehl-Vonnegut Spindle is designed so all power is transmitted through the **enlarged** middle spindle section which provides ample means to resist torque and also prevents any shock of cutterhead impacts from being transferred to the rotor end. This contributes to the accuracy of both cutterhead and rotor rotation. Since this design stiffens the spindle ends and prevents spindle whip, it also extends the wear-life of your machines and tools.

If you have never seen a Diehl-Vonnegut Moulder in action, your Diehl representative will gladly show you one. Write today for his name, or ask for literature on the size moulder you need.

OTHER DIEHL PRODUCTS—Rip Saws & Cut-off Saws . . . Veneer Splicers . . . Veneer Jointers . . . Tapeless Splicers . . . Glue Jointers & Edge Moulders . . . Edge Gluing Machines . . . Cutters & Cutterheads . . . Cutter Grinders . . . Saw Sets . . . Glue Pots . . . Specially Engineered Conveyor Systems.

THE G. M. **Diehl** *On the Banks of the Wabash*
MACHINE WORKS, INC.
WABASH, INDIANA • U. S. A.



Part VIII Types of Cutting Steels

By Thomas D. Perry

THE WORKING life of the cutting edge in a woodworking tool, or the time during which the tool provides satisfactory cutting service before grinding or sharpening becomes necessary, is a matter of prime importance to woodworkers. While operating speeds, character of the material to be cut, clearances to avoid friction, and the like, may influence this working life, the problem eventually resolves itself into the quality of the cutting steel of which the tool is made. Even if all these conditions are favorable, the working life of the different types of steel will vary widely. It is necessary therefore, to select the type of steel most appropriate to the task, which gives the longest working life consistent with the initial cost of the tool and of its maintenance.

Essential Qualities in Tool Steels

Some cutting operations require tool steel with predominant toughness and moderate ductility, as in saw teeth to be spring set or swaged. Other cutting edges do not require the same degree of toughness, which can be provided by reinforcing backings, and thus permit the use of much harder types of tool steel. These are more abrasive resistant and withstand high operating temperatures, as in the knives of a multi-knife cutter head on a jointer. However, these harder steels are more brittle and more susceptible to injury from impact. The type of steel for cutting tools must be selected within the limitations of the task in hand, and is usually a compromise beween desirable qualities and inherent limitations.

The proper alloying of cutting steels is a problem in metallurgy, but this article will attempt to treat it in as nontechnical a manner as possible, consistent with the facts.

Fundamentally steel is a combination of iron with varying minor amounts of carbon and other metallic ingredients, each of which contribute to the cutting quality of the alloy.

Tool steels, with the exception of the tungsten carbide types, are hot rolled

and re-rolled, from cast steel ingots, to the desired thickness. In comparison with powdered aggregates, such as tungsten carbides, they are somewhat fibrous, as can be noticed in tension fractures. The rolling process contributes to this fibrous character. The various heatings and normal coolings involved in the rolling operation do not materially alter the hardness qualities of the steel or the carbon concentrations. However hardening occurs when highly heated steel is quenched rapidly and tempering is accomplished by reheating in various ways to predetermined but moderate temperatures. These heatings are now produced in furnaces, where temperatures can be accurately controlled, and the older technique of drawing the temper according to color is largely outmoded.

Major Types of Tool Steel

There are four types of steel used in wood cutting tools, in addition to the tungsten carbide types. The tungsten carbide types vary from normal tool steels, not only in the ingredients, but in the method of compounding these ingredients: carbon tool steel, carbon file steel, low alloy steel, high alloy steel and tungsten carbide materials

There are many intermediate types, so that each type really represents a zone of sub-types, and the line of demarcation between zones may not be too definable. Major tool makers have usually developed their own types, often designated by trade names, and stoutly defend and promote their developments, sometimes possibly with more vigor than is justified. It sometimes happens that substantially the qualities can be obtained by different proportions of the alloying materials. More of one and less of another may produce approximately the same end result, so far as cutting qualities and maintenance are concerned.

Customers in the woodworking industry are seldom interested in the ratios of ingredients, and are quite correct in feeling that the composition of the steel is the major responsibility of the tool maker. These customers, however, are interested in cutting service, within a reasonable price zone. They should fully inform the tool maker of the conditions of proposed service, and then confine the purchased tools to that type of work. Much of the criticism of tool steels derives from the unawareness of the tool maker as to the requirements of the customer, as well as from the failure of the customer to use the tool as directed or intended.

As a result, many customers have standardized their purchases on certain trade names, which is quite gratifying to the tool makers, but sometimes the practical application of the trade named tool steel is stretched far beyond the original design intent. Hence it is always desirable, in buying even replacement tools, to outline its intended range of work.

There is no "one best type" of tool steel for all types of cutting problems in a woodworking shop, and any adoption of a single standard will inevitably lead to inefficiency in certain sections of the shop. The heavy coarse cuts on rough lumber, where stock removal is the major objective, require quite different cutting techniques from the finishing cuts, where smoothness and accuracy are essential. The counsel and advice of a tool maker's representative can be had for the asking and is gladly supplied. It can be of distinct help in selecting the proper types of tool steel for each type of work.

Carbon Tool Steels

Standard carbon tool steels are well established and have been used for years. They contain from 0.70 to 0.90% of carbon, with little or no other alloys. They are hardened by heating to about 1450°F; and are quenched in

oil or water, depending on the size. They are subsequently tempered at 600°F to 1000°F, depending on service requirements and operating temperatures. Tempering at approximately 800°F gives maximum hardness for this type of tool steel, consistent with the toughness required for clamping, tooth setting and shock resistance. High tempered steel knives are preferred for the hardwoods, such as kiln dried maple and oak, ranging down through intermediate tempers to a medium tempered steel for such softwoods as white pine, cedar and the low density hardwoods, of which poplar, chestnut and gum are examples.

This type of tool steel continues to be used for low cost grades of tools, but is not considered useful or desirable in the better grades, where cutting requirements have become more exacting.

Carbon Steel for Files

This is a special grade of steel, containing 1.20 to 1.40% of carbon, which is hardened by heating to about 1420°F and quenched in brine. It is not tempered, but remains exceedingly hard, with a hardness, when finished, of about Rockwell 70-C. Files are cut before hardening and the tang is not hardened, to allow as much toughness as possible at the junction of the blade and the handle.

Low Alloy Tool Steels

These are the next above the carbon tool steels in quality, in fact they are essentially carbon tool steels with the addition of 1 to 1½% of alloying ingredients. The following is a typical combination, although there are many similar combinations:

Carbon	0.70 to 0.80%
Nickel	0.75%
Chromium	0.20%
Molybdenum	0.15%

This low alloy steel is hardened by heating to a range of 1425° to 1450°F, quenched in oil and tempered between 600° and 1000°F, depending on service requirements. They are tempering ranges from very hard to medium hard, as indicated in the carbon tool steels above. Resulting hardnesses are from 42-C to 55-C Rockwell. This low alloy steel has largely superseded the carbon tool steels for the better grades of woodworking tools. It is a versatile type suitable for many purposes under different tempering conditions. It has the following desirable qualities: maximum toughness with high hardness; good abrasive resistance to preserve sharpness; and excellent fatigue resistance for hard and continuous service.

This steel is suitable for machine saws of most types, as it will take swaging and spring setting of saw teeth in the lower end of the hardness range, and can be used for hollow ground saws in the upper ranges. It is also adapted to making solid knives, both thick and thin.

High Alloy Tool Steels

These are commonly called high speed tool steels, which can be operated at much higher speeds, and consequently higher permissible temperatures without drawing the temper. This type, or the several sub-types of high alloy steels, are hardened and tempered under carefully controlled conditions to an unusual degree of hardness designed to withstand high working temperatures, such as may develop at high speeds or with heavy cuts. The hardness of the cutting tools made with high alloy steels is such that they must be shaped to cutting contours before hardening and tempering. They give long working life under extremely severe working conditions, but tend to be brittle and require mechanical support, which will largely remove the shock load from the high alloy material.

This mechanical support, or backing can be provided on thin knives (⅛" to

¼") by firmly clamping separate backing plates of milder steels; or in thick knives by welding faces of high alloy steels to a backing of mild steel, thus integrally joining the cutting edge with the reinforcement. The contrast between these two types is shown in Fig. 1. These types of welded or composite construction are often called laid or

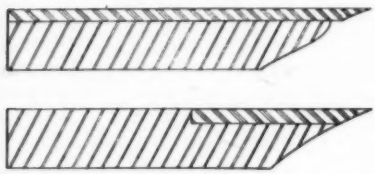


Fig. 1. Reinforcing backing for high alloy tool steel knives.
Above: separate backing plate on thin knives. Below: composite (welded) backing on thick knives.

inlaid knives. This backing material is either a low carbon (0.30 to 0.40%) carbon tool steel, or a low carbon (0.20%) low alloy tool steel. In either case this arrangement permits the hardening and tempering of the high alloy steel face, separate or composite, while preserving the essential toughness of the mild steel backing.

There are several major sub-types in this high alloy steel group, which will be briefly outlined. There are also a number of others which differ in detail, but generally can be related to three principal sub-types.

Tungsten high speed steel, with substantially the following principal ingredients:

Carbon ..... 0.60 to 0.70%
Tungsten 18.0%
Chromium 4.0%
Vanadium 1.0%

The tungsten contributes largely to the hardenability of the alloy, as it is one of the hardest and heaviest metals, but it tends to corrode easily.

The structural differences in these steel types are difficult to illustrate, but Figs. 2, 3 and 4 graphically indicate some of the marked contrasts. Photomicrographs are provided through the courtesy of Henry Disston & Sons, Inc.; magnification of the originals x 1,000.

High carbon-high chrome steel, with substantially the following principal ingredients.

Carbon ..... 1.75 to 2.25%
Chromium ..... 12.0 to 14.0%

This steel is characterized by high abrasive resistance, with some non-corrosive properties, due to the high chromium content. This combination is slightly less hard than the tungsten combination, but it is not as brittle.

Molybdenum steel, with substantially the following principal ingredients.

Carbon .....0.75 to 0.85%
Molybdenum .....6.0 %
Tungsten .....4.0 %
Chromium .....3.0 %

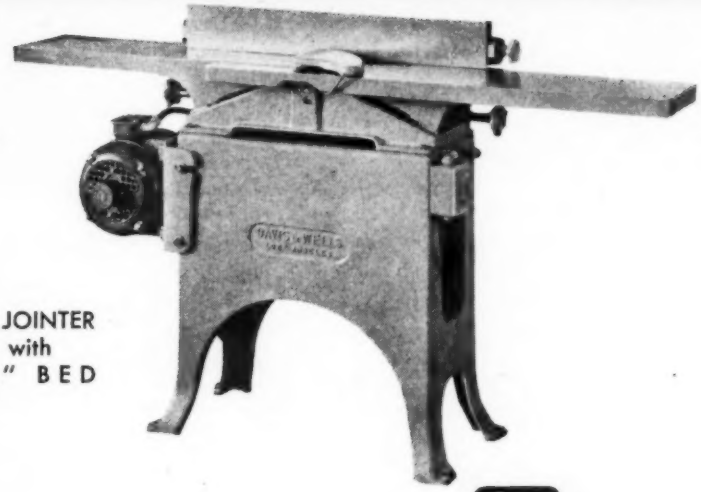
Both the molybdenum and tungsten contribute hardness. This steel is quite similar in working qualities to the tungsten high speed steel. In fact, its use may be emphasized when tungsten is not readily available.

The technical suitability of these sub-types and related combinations, for cutting wood, involves too many variables for review in this article. Readers are referred to their tool suppliers for further details.

Tungsten Carbide Materials

The manufacture of this material differs basically from the other steels described, which have been rolled sheet or bar processes. It is often called sintered, or cemented, carbide tool material, and consists for wood cutting tools, principally of a mixture of approximately 87% carbide of tungsten, with some 13% cobalt, as the low melting point cementing or binding material. The material is formed into

PLANES WIDE SURFACES LEAVES NO LAP



6" JOINTER
with
62" BED

Precision Built by

DAVIS AND WELLS

This fine Davis & Wells Jointer is packed with superiorities which can't be overlooked. Table adjustment is made much faster with much less effort. A few turns of the adjusting knob drops the table from a finish cut to a full ½" rabbet cut. The Davis & Wells 6" Jointer has a 62" bed of cast semi-steel with table surfaces ground in pairs to assure perfect alignment. Fence tilts forward or backward to full 45 degree, is easily locked in place. The wide fence support completely covers unused portion of jointer head when fence is moved forward for a narrow rabbet. Permits planing of wide surfaces yet leaves no lap. For full details on other features see your nearest Davis & Wells dealer or write to Consolidated.

S O L D B Y

CONSOLIDATED MACHINERY & SUPPLY CO., LTD.

2029-33 Santa Fe Avenue, Los Angeles 21, California

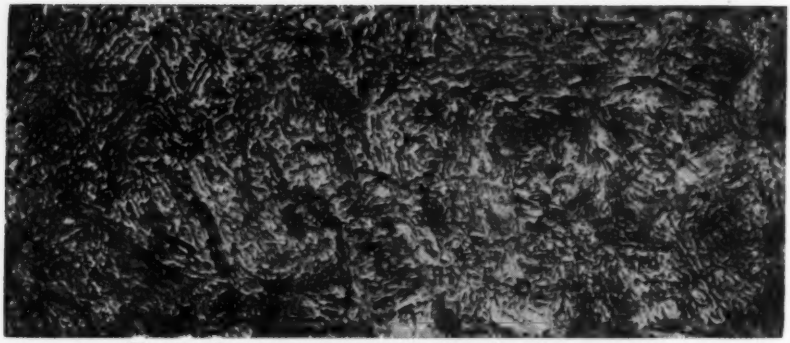


Fig. 2. Carbon tool steel, hardened and tempered.

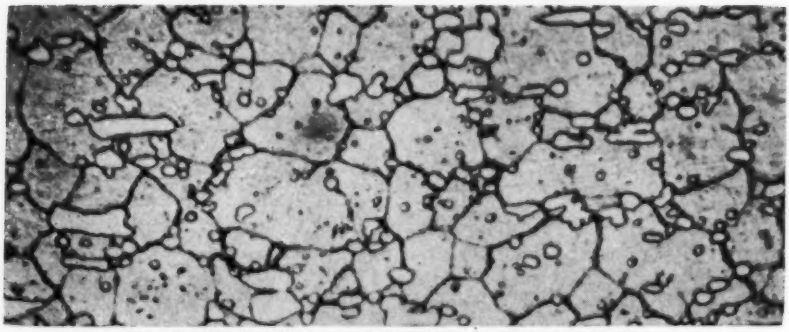


Fig. 3. High alloy steel (tungsten) after hardening.

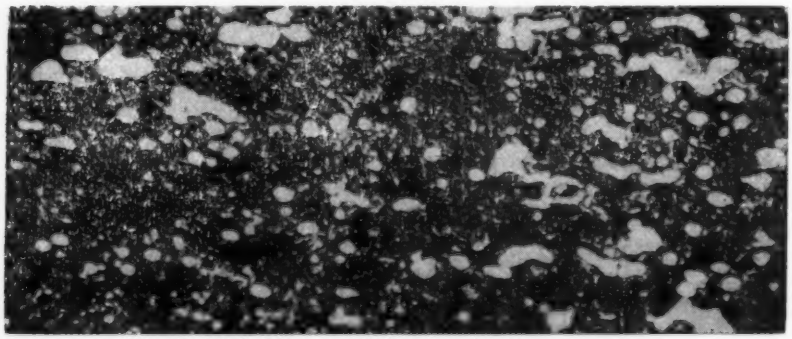
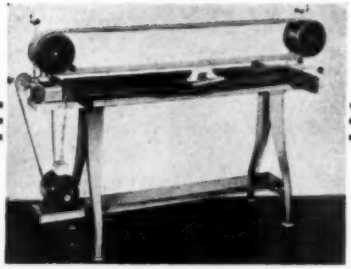


Fig. 4. High alloy steel (tungsten) after tempering.

the desired shape by powder metallurgy, after which the products can be altered in shape only by grinding. Sintering is essentially the heating to the melting point of the binder, while the mixture of material is highly compressed in molds. There are no hardening or tempering processes required



FOR QUICK SANDING OF ALL WOODS

for Polishing and Fine Surface Finishing

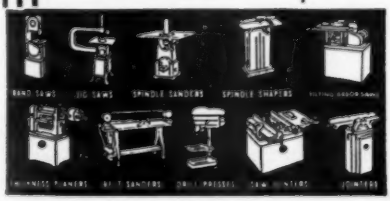
OF METALS • PLASTICS • FIBRE

THE BOICE-CRANE

MILL-TYPE, HAND-STROKE BELT SANDER-GRINDER

- Lowest cost. Most compact.
- The work is always face up, saving time, eliminating guesswork, and reducing spoilage. Instant control from light "spot" touch-up to deep "all-over" cut.
- Serves as drum sander on contours and irregular shapes. Drums 10" dia., 7" wide.
- The free rolling of the 18" x 60" work table, plus hand stroking, results in a satiny finish. Table travels 18 inches fore and aft.
- Handles materials up to 36" wide—impossible without the rolling work table—60" long, 4" thick. Unlimited length capacity on stock up to 12" wide.
- Large needle-bearing equipped idler pulleys lengthen belt life and increase power.
- 6-inch cloth-backed belt.

Sold Through Industrial Supply Distributors

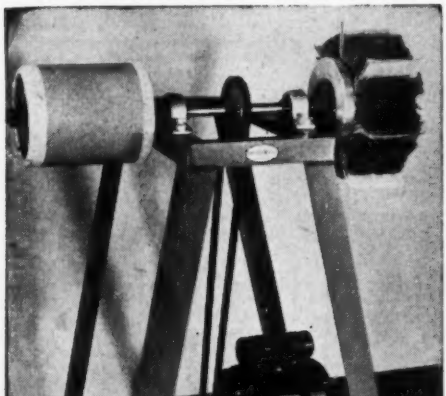


BOICE-CRANE COMPANY
931 Central Avenue Toledo 6, Ohio

☐ Please send new 44-page Catalog No. 50 on entire line of Boice-Crane Power Tools.
☐ Please send literature on Boice-Crane Belt Sander-Grinder.

Name .....
Firm .....
Street .....
City..... State.....

LOWER YOUR SANDING COSTS



USE A

Sand-Rite "DUO" Sander

Get A-1 finishes on all types of wood products with rounded contour and irregular shape, such as—

- CHAIR ARMS & LEGS
- TABLE LEGS
- GUNSTOCKS
- BRUSH HANDLES
- TOYS
- GOLF CLUBS
- MOLDINGS
- DISPLAY FIXTURES

The Sand-Rite "Duo" Sanders are available in floor models as illustrated or in handy bench models. The "Duo" will save you labor time and abrasive materials and give you finer finishes.

WRITE TODAY FOR INFORMATION

SAND-RITE MFG. CO.

Dept. W

228 W. Schiller St. Chicago 10, Ill.

in the tungsten carbides. The attained hardness is of the order of Rockwell 70-C and up.

Tungsten carbide materials are exceedingly hard and provide extraordinarily long cutting life without appreciable deterioration of the cutting edges. However, the material is brittle, and has insufficient tension or torsional resistance for use in cutting tools, except where reinforcing backing can be supplied by a tougher type of steel. Tungsten carbide withstands high operating temperatures better than any of the other types of steel mentioned, and has remarkable resistance to abrasive action by the wood during the cutting operation. Lengthening the working life of an edge tool ten fold, or even twenty fold, over the best of the alloy cutting steels, is not an unusual record.

Tungsten carbide is attached as tips on steel saw teeth or as edges on steel knives, by cementing, brazing or mechanical clamping devices. Cutting edge angles in tungsten carbide cannot be as sharp as in other tool steels, since the granular nature of the material will not support such an acute edge. Hence more reliance must be placed on speed for smooth accurate cutting. Tungsten carbide cutting points and edges can be sharpened only with diamond abrasive powders or wheels. "Spares" are usually kept on hand to permit the return of tungsten carbide tools to the maker for reconditioning. The brittleness of tungsten carbide is such that they may nick under a slight blow, and they should always be kept, when not in use, well protected from damage in individual storage cases.

Tungsten carbide is distinctly above the other steels in cost, which may have retarded its adoption by many woodworkers. However, when properly used, it has been found decidedly economical, and will pay for itself in a short time.

Due to the fact that its shape must be formed initially at the makers, and cannot be modified by the user, it is best suited to long runs of standard shapes. While tungsten carbide has not yet been adapted to all types of cutting operations, where it is applicable, it gives promise of producing substantial economies for woodworkers. Those who have really tested it, seldom, if ever, are willing to return to the use of other types of tool steels.

Conclusions

The types of cutting steels used in woodworking tools are far more important than the industry has yet realized. Since there is no "one best type" for all cutting operations, it is essential that every woodworker study his various wood cutting problems, consult with his tool maker, select and demonstrate the most efficient cutting equipment for each type of machine. Such a process need not be upsetting or revolutionary in any factory, the decisions can be made, one by one, in an orderly way, a sort of evolution, step by step, toward a longer working life for every tool, and an improved cutting technique in every department of the shop.

The writer acknowledges valuable assistance in preparing this article from Norman C. Bye, director of engineering, Henry Disston & Sons, Inc., Philadelphia, Pa.

The End

NEW REPRESENTATIVE FOR UNITED LACQUER

Appointment of E. D. Stowell, veteran Norwood, N. Y. commission broker, to represent the United Lacquer Manufacturing Corp., manufacturers of industrial and automotive finishes, throughout northern New York State has been announced.

Additional information on any product mentioned in this issue is available from our Market Service.

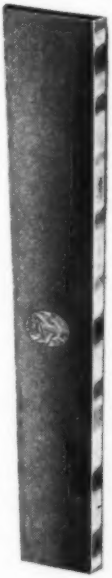
DEDGIE, the Planer Boss says:—

"Some folks are like taxi drivers — they go through life just missing everything."

If you want better production don't miss using

DETROIT KNIVES

PLANER - MOULDER
VENEER - CLIPPER
SHAPER STEEL

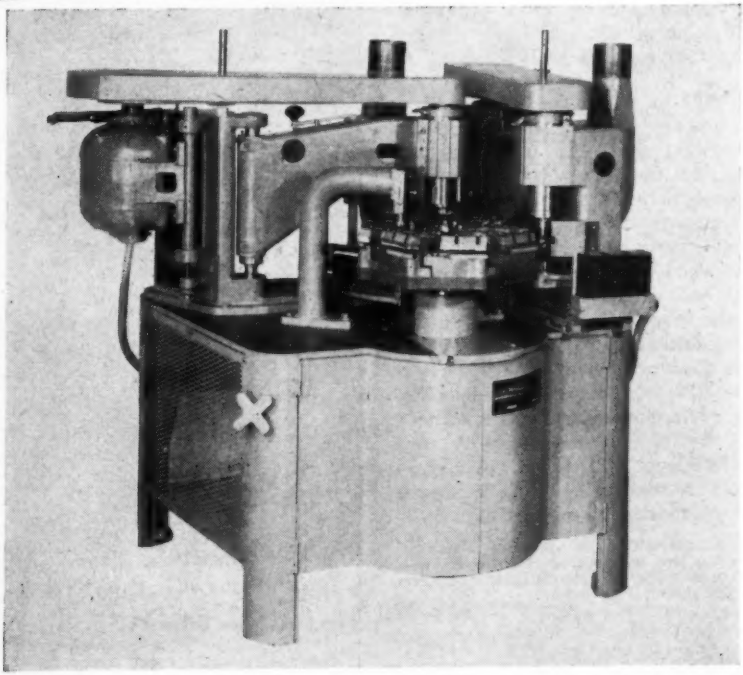


You can depend on DETROIT knives for uniform temper, better cutting and long edge holding. Ask for DETROIT knives in your next order — you'll be pleased with their work.

Better Knives
since 1885

DETROIT EDGE TOOL CO.
3425 WIGHT STREET
DETROIT 7, MICHIGAN

RICHARDSON AUTOMATIC SHAPER



Here's automatic speed to boost your production to new records. Equipped with two shaping heads; one for roughing and one for finishing, the Richardson gives you smoother, more accurate shaping. It has automatic cam operated clamps, and automatic unloading of the stock. This all means substantial labor saving plus smoother work in greater volume.

Write for complete details of this machine.

J. S. RICHARDSON COMPANY
ENGINEERS & MANUFACTURERS OF HIGH SPEED PRODUCTION EQUIPMENT
SHEBOYGAN FALLS, WIS.

REISEN LUMBER & MILLWORK COMPANY

SERVICES OFFERED FOR A METROPOLITAN AREA

TO FILL a need for a complete distribution yard to serve the heavily industrialized metropolitan New York and northern New Jersey area, the Reisen Lumber & Millwork Company has used progressive merchandising and marketing. Whatever the requirement—simple or complex—the Company strives to solve and satisfy the particular requisite.

Business policies and precepts, formulated during 40 years of experience by the founder of the Company, the late Harry K. Reisen, and objective, exhaustive research have led the Reisen Lumber Company into many fields. Some of these were practically unknown in the lumber yard of yesteryear.

Visiting the yards and general offices of the Company at Union, N. J., one is aware that the yard of "shacks down by the tracks" has graduated and matured into an efficient operation. In this atomic age it is important that the lumber industry develop and adopt business practices and technological improvements in step with the times.

On a site of approximately 10 acres in the heart of industrial New Jersey, centrally located on main highway arteries, large stocks of lumber, hardwood and softwood, millwork and building materials are assembled for marketing by Reisen as wholesalers to retail lumber yards, industrial users, furniture manufacturers, as well as to contractors, large developers and home owners.

A 650 foot long railroad spur through the Reisen yard facilitates rail shipments; water shipments from the West Coast and foreign countries arrive and are unloaded at the piers of Port Newark and the Port of New York, just 20 minutes from Reisen's yards. Storing, handling, and trucking are accomplished by use of lift trucks, lumber carriers and a fleet of 18 delivery trucks and tractor-trailers. A garage is operated on the premises where all maintenance work is done.

Sheds were designed and devised for particular needs and definite uses. The main hardwood shed adjoins and operates in conjunction with the dry kilns. This shed has a capacity of almost 750,000 feet of dry lumber. Also adjoining the kilns and hardwood shed is a recently completed planing mill. Stock millwork and mouldings are stored in a two-story shed, 150 feet long. The railroad siding runs through the center of this building, providing protection for incoming and outgoing cars. Setup window units are "production line" manufactured in Reisen's millwork shop, in addition to other special architectural custom millwork. A steam heated glazing shop is an integral part of the main millwork shed. Other buildings and open-faced sheds are used for the storage of dry pine, plywood (hardwood and softwood) and other finished lumber.

Another Reisen service facility is the installation of the preservative dipping

Scientific data is compiled by Hardwood Division Manager Herbert Seidel, to enable Reisen to have the best kiln drying results.

tank for the treatment of construction and commercial lumber. This is one of the first installations in the state or the east. Lumber is treated with Cona, a synergized copper napthanate formulation. The decay and termite resistant treatment will, according to independent testing laboratories, give longer life to any wood vulnerable to such attack.

In addition to treating its own lumber, Reisen Lumber custom treats lumber with Cona for others.

Because a great deal of lumber, especially hardwoods, is received ungraded, in random thicknesses, widths and lengths, and must be stickered and placed in kilns, a large "staging area" has been set aside for this work. After lumber has been sorted, metal banded in packages to prevent sliding and movement in handling, and the footage and grade marked for inventory control and sales information, lift trucks carry "bunks" to air drying storage areas, or to kilns.

This same "staging area" is used to assemble orders and shipments to large users of lumber—lumber dealers, manufacturers and government agencies. When material is finally approved for shipment or pick-up, final handling is swift and labor-free.

Reisen Lumber & Millwork Company has long felt that there was an especial need in its highly populated, commercial and industrial trading area for a diversified hardwood storage yard to scientifically kiln dry and distribute domestic and foreign lumber. It was in 1946 that Reisen further expanded its varied operations to include kiln drying of high quality lumber for every purpose. The advantage of delivering lumber directly from the kilns to the consumer, before the lumber could pick up moisture in transit, were obvious.

Reisen is proud of many things that stand behind and accompany its products and reputation. Care in kiln drying and in the handling of kiln dried lumber are high on the list of reasons for this success story.

The choice of the right dry kiln was the first question which confronted Reisen Lumber. Kilns manufactured by the Standard Dry Kiln Company of Indianapolis, Ind. were finally chosen.

Experienced hands unloading and stickering lumber for drying at the Reisen plant. Notice Reisen's packaged piling for fork lift handling — a great savings in time and money.

PORTER—CABLE

Speedmatic

STERLING

1000 SANDER

Preparing for a finish for built-in furniture.

Finishing sectional shelf and cabinet units.

Sanding rounded surfaces with sponge pad.

Ideal for rubbing varnish, lacquer, etc.

Smooths joints and surfaces of kitchen cabinets, cupboards.

Ideal

for cabinet and trim FINISHING

. . . ORBITAL MOTION makes it so!

Here's Why . . . You sand *with* the grain, *against* the grain, *across* the grain. Where the grain is irregular — where two pieces of wood butt at right angles — the orbital motion of the grits sands uniformly, regardless of the direction of the sander's path.

This is a real production feature — one that saves you plenty of time and labor. More! The Speedmatic-Sterling 1000 features *balanced lightness* for ease of operation. Weight only 8 lbs. Price only $115. At your Porter-Cable dealer's. For complete details send in coupon below.

PORTER-CABLE MACHINE CO.
571 N. Salina Street
Syracuse 8, New York

Please send me full information on the Speedmatic-Sterling 1000 Sander — also name and address of my nearest dealer.

Name.....

Address.....

City..... Zone..... State.....

Manufacturers of SPEEDMATIC and GUILD Electric Tools

In Canada Write: Strongridge Ltd., St. Catharines, Ont.

YOU'LL PROFIT 4 WAYS with Moisture Register

Moisture Register instruments give you

- **Consisten production excellence.**
- **Precise quality control.**
- **Reduced equipment maintenance.** Prevent damage to cutting equipment from excess moisture.
- **Added prestige for quality work.**

When you use Moisture Register instruments for testing moisture content, you'll know that wood will be exactly right for most efficient bonding, cutting, fitting and finishing.

Moisture Register is the only manufacturer of electronic moisture testing instruments with guaranteed performance. A wide range of models, with prices from $75.00 to $148.50, test from zero to 25% in 3 seconds or less. Test 80 wood varieties. Compact, rugged, portable. One-year guarantee, backed by 17 years of experience.

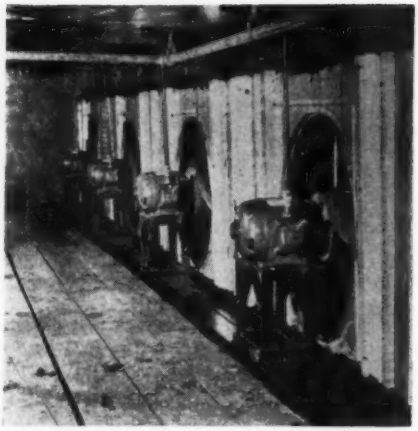
Testing moisture content of panelling with Model RF4 at Morris Furniture Company, Los Angeles, manufacturers of high quality furniture.

10-day free trial on any model! Prove to your own satisfaction that Moisture Register will save you time and money. No obligation. Write today, outlining your requirements.

Write for complete information on the Moisture Register instruments for the paper, textile, leather and wood industries.

ELECTRONIC MOISTURE REGISTER

1510 W. Chestnut St.
Alhambra, California.



Individually driven, automatically reversible kiln fans assure even flow, uniform circulation.

Here was an automatically controlled reversible cross-circulation dry kiln which was capable of producing uniformly dried lumber, free of casehardening, honeycomb and internal stresses.

Lasting and straight-forward customer relations demand that lumber be scientifically processed, dried to a uniform moisture content, to eliminate costly waste caused by improper drying.

The first operation includes the grading and sorting for lengths and the careful stickering of the lumber to be kiln dried or air dried. This, in many ways, is one of the most important steps in the proper drying of wood. Improperly piled green lumber results in twisted, cupped and warped dry lumber. After this first piling operation, the steel-banded "packages" are handled mechanically until shipped.

When lumber is sold and ready to be placed in the kiln, a fork lift truck moves it from air drying storage areas to loading on the kiln trucks. Kiln trucks contain only one "box" piled length and are carefully placed in kiln for maximum utilization of space and uniform circulation of forced air.

Reisen's engineer, Jack Adams, testing kiln samples during a kiln run. Notice automatic humidity and temperature controls in background.

Once the lumber is in the kiln, it receives careful and undivided attention. College trained wood technologists use gauges, scales, balances, thermometers, microscopes, moisture content registers and other laboratory instruments to accurately and scientifically control the drying to the proper percent moisture content, based on the oven dry weight of the wood.

The kiln is heated by means of radiator-like steam pipe coils. Heat and humidity are controlled by a Standard Dry Kiln temperature humidity recorder controller which charts the dry bulb and wet bulb temperatures for 7-day periods, 24 hours a day. The ventilation is also automatically controlled independently of the automatic steam spray humidifier.

Circulation is accomplished by the use of individually driven, automatically reversible glass-spun motor kiln fans, assuring ample and uniform circulation at all times at very low power costs.

Lumber is removed from the kilns only after extensive tests indicate that it will pass the most rigid requirements of the industry. Fork lift equipment un-

INDIVIDUALLY TESTED TO INSURE BETTER PERFORMANCE

HARGRAVE

Quick Clamps
Openings 4 in. to 5 ft.

IMPROVED
Spring Clamps in three convenient sizes

No. 640 Improved "I" Bar Clamp
Openings 1 ft. to 12 ft.

"C" Clamps
Openings ¾ in. to 18 in.

Hand Screws
All popular sizes

• Hargrave Clamps have been constantly improved with the aid of skilled mechanics to offer greater operating advantages and increased durability. Individually tested, they must be stronger, tougher and flaw-free. Made in openings from ¾ in. to 10 ft., from ½ in. to 16 in. deep.

WRITE FOR CATALOG

showing a clamp for every purpose. Also chisels, punches, brace wrenches, star drills, washer cutters, file cleaners, saw vises, etc.

1949 Waverly Ave.
Cincinnati 12, Ohio

HARGRAVE
Tested Tools
THE CINCINNATI TOOL COMPANY

THERE IS AN INDUSTRIAL DISTRIBUTOR STOCK NEAR YOU

AUTOMATICALLY

SWIVELS CROSS-CUT SAWS!

- **Each tooth is filed as it comes along.**
- **Sharpens & bevels in one operation.**

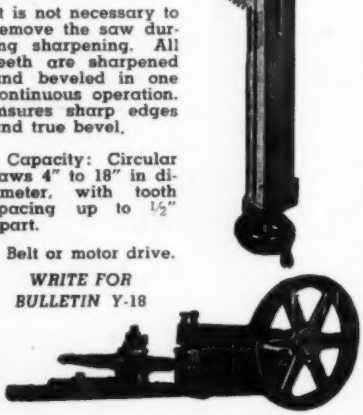
WARDWELL Y - 18
Cross Cut & Rip
Circular Saw Filer

It is not necessary to remove the saw during sharpening. All teeth are sharpened and beveled in one continuous operation. Insures sharp edges and true bevel.

Capacity: Circular saws 4" to 18" in diameter, with tooth spacing up to 1/2" apart.

Belt or motor drive.

WRITE FOR BULLETIN Y-18



AC 38 SETTING MACHINE

Automatically sets teeth at a speed of 150 to 200 per minute on circular saws ranging from 5 in. to 38 in. diameter.

The WARDWELL Mfg. Co.
3161 Fulton Road, Cleveland 9, Ohio

loads the kiln trucks and handles the loads as they leave the kilns.

Painstaking care is exercised in drying lumber. Kiln dried lumber is unloaded from kilns directly into closed storage sheds, shielded from external weather variations. It remains in protective storage ready for immediate shipment.

The modern milling equipment completes the final step in the Reisen production line. Newly installed machines help insure clean, accurately machined material.

The economical efficiency of the yard is not the result of haphazard chance. It represents the careful and studied planning of the entire Reisen organization. Monthly meetings and discussions with supervisory employees aid a great deal in charting the course for the future.

A firm conviction exists throughout the entire Reisen organization that sound lumbering practice, modern drying methods and maximum utilization of forest wealth is vital to the conservation of our natural resources. The experienced, technically trained Reisen sales force, wood engineers, and certified dry kiln experts, stand ready to promote this idea by providing scientific aid and advice on wood utilization problems to the trade.

The End

STOP DUST

DUSTKOPS — **20 Models**
UNIT TYPE — 300 to 3600 cfm
LOW COST — ¼ hp to 5 hp

AVAILABLE FROM STOCK

For: Grinders, buffers, polishers, woodworking, lint . . . All Dusts.

Send for Cat. 605a; describe problem.

AGET-DETROIT CO. • ANN ARBOR, MICH.

MASONITE PANELWOOD

Masonite ¼" Panelwood, while designed primarily for indoor use, has certain protected exterior uses which Masonite Corporation details in its technical bulletin No. A-222. These additional applications are soffits or planciers on the underside of eaves; porch, breezeway, and carport ceilings.

In these applications, the Panelwood may be nailed over sheathing or fastened directly to wood framing members spaced not more than 16" on centers. Directions are given for conditioning the panels before application. Nailing instructions are included.

Copies may be obtained by writing Masonite Corporation, Dept. WD, 111 West Washington St., Chicago 2, Ill.

SLIMMER & CO. PURCHASED

The Veneer Lumber & Plywood Co. of Chicago has purchased the entire business of J. Slimmer & Co., including the Chicago Wooden Tank Co., division of J. Slimmer & Co.

This addition to their business will give much needed warehouse facilities and also enable Veneer Lumber & Plywood Co. to give their customers a complete millwork service. For the present, each business will retain its own name and continue to operate as an entity as in the past.

Veneer Lumber & Plywood Company expects to begin serving customers from their new location, 2601 S. Throop St., Chicago, by December 1.

do the job better

Your machines are only as efficient as their knives. Stalter knives will improve their work and production. They stand up under high speeds and heavy feeds. Thermo-Temper knives represent the finest in carbon steel; Tungsten-Temper gives you the advantages of high-speed steel. For over 35 years we've supplied woodworkers with knives for shapers, planers, tenoners, moulders, etc. Also automatic lathe knives and band saws.

PROMPT DELIVERY

.et us recon:mend knives for your machines and jobs. Ask for catalog containing complete details. You are promised prompt delivery of all orders.

STALTER EDGE TOOL COMPANY
GRAND RAPIDS MICHIGAN

DIEHL'S CLAMP TYPE
CUTTERHEAD

● Before it leaves the factory, every Diehl Cutterhead is statically and dynamically balanced. That's one reason why high speeds and fast feeds are no problem when you use Diehl Cutters and Cutterheads. In addition, you profit from 40 years of specialized Diehl experience. You want simple design—fast, accurate set-up—high production over a long and trouble-free wear-life. Diehl engineers know your needs today, anticipate tomorrow's.

If you have a special problem, just tell us what you want to accomplish: we'll be glad to show you how Diehl would solve it. For complete information on Diehl Cutters and Cutterheads, write for a copy of Catalog No. 88.

OTHER DIEHL PRODUCTS: Rip Saws & Cut-off Saws — Diehl-Vonnegut Moulders — Veneer Splicers and Jointers — Tapeless Splicers — Glue Jointers & Edge Moulders — Edge Gluing Machines — Cutter Grinders — Special y Engineered Conveyor Systems.

Cutter Division

THE G.M. **Diehl** MACHINE WORKS, INC.

On the Banks of the Wabash

WABASH, INDIANA • U.S.A.

BETTER *rides for furniture*

PART I
BY S. L. SWENSON

Because of the popularity of the series of packaging articles just completed, we are publishing a second series of articles. Mr. Swenson's succeeding articles will deal with "Overstuffed Furniture," and "Tables and Occasional Furniture."

FURNITURE CAN BE well protected, and it doesn't cost more than a few cents per piece to do it. To prove the case for better furniture packages at little added cost, look around in some of the more progressive plants.

Here a lot of thought is given to quality furniture, both as manufactured and the way the customer receives it. This holds true, now more than ever before, for low-cost and medium grade furniture, as well as for expensive items.

Look at your package with an open minded attitude. Get your friends to criticize it. If you know what's wrong, the problem is half licked. Next, take stock of your bag of tricks. Are you really familiar with and using all the little ways you can contrive to cut down wood bruises, burns, rubbing, pressmarks, cracks and splitting in finished furniture? If not, you ought to pack that bag, go and find out.

How can furniture be delivered by rail in genuinely better condition without prohibitive added cost? A lot of thought is needed. But, first, you've got to know what's causing damage.

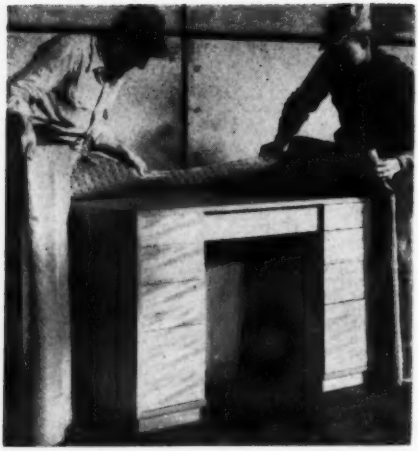
Minor damage is really the basis of most serious dealer and customer dissatisfaction. As a rule, when carriers rough handle merchandise, severe damage and its cause are apparent. Shipping injuries of lesser character, however, such as bruises, cracks, pressmarks, burns, rubmarks, are the bad actors that hurt your reputation. Many consumers and even some dealers attribute such injuries to poor quality furniture.

The railroads publish packaging specifications covering all types of furniture. These are the Consolidated Freight Classification Committee directives. When shipping furniture by rail, you must use one of their approved packages. However, finishes, corners, edges are all vulnerable spots and still come in for their share of costly punishment.

What can be done to get pre-packed furniture to the consumer in good condition? Your dealer wants him for a satisfied repeat customer. You want the dealer satisfied.

Get that finish dry! Sufficient time, thought and labor are devoted to applying a satisfactory finish—keeping it uniform and free from dust and lint. Yet many finishes arrive pressmarked due to inadequate finish drying. Sub-film surfaces often are in a semi-fluid state, although the outer skin may feel dry.

Mr. Swenson is product engineer, Kimpak Crepe Wadding, Kimberly-Clark Corp., Neenah, Wis.



Surface protection of fine furniture with a Kimpak blanket.

A hard crust on a furniture finish may be misleading. It is only a completely dry film which resists pressmarking. Where finishes cannot be completely dry, time plus finish "setting" characteristics not permitting, then use the softest surface cushioning and contact pads possible. Also spread pad contact area over as great a space as possible. This lowers packing stresses and pressures, minimizing pressmarks. Use very soft cushions like cotton blankets, wood fiber felt and creped cellulose wadding to minimize pressmarking. They will not stick to finishes with a dry surface film. No padding or cushioning of any sort can be successfully applied to a furniture finish that is in a "tacky" stage.

Use cushioning blankets that treat your furniture finish well. Some package applications require padding with resilient, anti-bump-and-dent protective qualities. This pad should also be kind to your furniture surface. Other thinner cushioning blankets are designed only to protect finished surfaces from rubbing and abrasion.

Kraft paper surfaces are smooth and strong, but hard. When cinders or sand infiltrate into furniture packages they may often find cracks and crannies in the container and in the padded furniture. When grit gets under Kraft paper, it acts like, and actually is, sandpaper! Such loose grit grinds away and ruins your highly polished surface.

Soft-surfaced pads and blankets take just as much dirt and grit, but they absorb it. They offer a soft, conformable surface to the furniture. Complete tape sealing of all edges and closures of containers will do a lot to cut down grit in your package. It is surprising, though, how dust and cinders work into even the best of packages.

The matter of finish protection is sadly neglected by some furniture manufacturers. Some use a semi-satisfactory solution—an interleaving or spacer sheet—and call it enough. Usually that is not enough. If you need a finish protection sheet for furniture having a good high gloss, then you must really give it finish protection. For only a few cents you can provide a top-grade, antichafing sheet that will practically guarantee factory gloss in the arrival package. Such finish protection is placed only against those surfaces that will be contacted by corrugated fibreboard, coarse paper surfaced pads, cleats, adjoining wood surfaces, etc.

The "2-F" case goods pack is one of the best known and frequently used railroad CFCC package. It depends much on softness and the resilient performances of a blanket measuring usually at least ¼" thick. The blanket must be applied to all finished surfaces, and is the only spacing medium between the furniture and the case. While popular, and fairly low-cost, the 2-F package is vulnerable to bruising damages of corner and edge. High quality manufacturers use additional protection with these packages.

Here are some of the things they do.

here's real value!

. . . acclaimed in every field

Here's a quality electric sander at a price that means real value. Compare the Model 200 Electric Sander with any other production line sander on the market . . . compare and you'll buy the Model 200.

Compare these features

- 100% ball bearing construction . . . sealed and shielded . . . no lubrication or filtering of dust required.
- 115 volt induction type motor . . . 50-60 cycle . . . 3450 RPM . . . gives fast rotary action sanding.
- Direct ball bearing drive gives longer life. Elimination of gears means lower maintenance cost.
- Scientific counter-balance minimizes vibration . . . reduces operator fatigue.
- Heavy duty switch with 100% overload capacity.
- High volume fan with controlled air flow keeps operating temperatures low.
- 33 sq. in. oil resistant rubber pad (4½" x 7½") takes half a standard abrasive sheet. Can be used for either dry or wet finishing.
- Weight 9 pounds . . . for easy non-tiring use.

Compare this price **$39.95**

Compare this warranty **full year unconditional guarantee against any defective material or workmanship.**

Make this comparison **TODAY**

See and try the Model 200 at your nearest dealer. Stocked by leading industrial and hardware distributors in most cities.

MANUFACTURED BY
Junior Tool Company 5570 ALHAMBRA AVENUE LOS ANGELES 32, CALIF.

NATIONAL SALES REPRESENTATIVE
M. F. Huseby Co.

First they may use corner pad reinforcements to doubly protect the most easily injured parts of furniture. Sharp blows of furniture falling of its own weight on one of its corners almost invariably causes a bruise. Use double and triple folded corner pads of corrugated fiberboard. They are cheap and can be pressed into place after furniture is blanket wrapped and in its case.

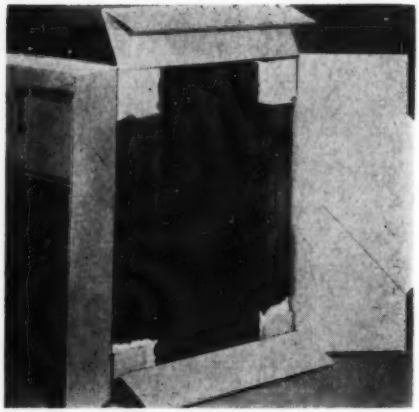
A second method is to use double thick corrugated fiberboard tops in containers. Use either the special full-overlap container giving double top flaps, or insert a second sheet of corrugated board in the top before closing flaps.

Another method is soft-finish blankets. These are a must for high quality furniture. And even "medium" and sometimes less-than-average quality manufacturers find a few cents added is well returned with fewer damage claims. Pressmarks and rubbing burns just are not there.

It is common knowledge that the armed forces are a big furniture customer these days. Uncle Sam's military buys furniture, and its package, by specification. The biggest share of furniture is being prepared for the army under U. S. Army Specification No. 32-59A; wood furniture and case goods, for officers' and non-commissioned officers' quarters.

The army's required blanket protection states, "Top, sides and front of case shall be further protected by applying wood-wool packing blankets, cellulose wadding pads, macerated paper blankets, wood fiber felt blankets, flexible single-faced corrugated or double-faced corrugated fiberboard material."

After specifying the above blanket material, the Chicago quartermaster, in charge of molding the above specifications, found by test and early shipping experience, that furniture finishes were not being adequately protected. Furniture surfaces were coming through with rubs, friction burns, and most objectionable of all, frequent pressmarking. After again testing the roster of blanket materials, the above specification was amended to add the following protective blanket in addition to those specified: "Each top surface of furniture piece must be completely covered with a blanket of cellulose wadding. Blanket will overhang top surface a minimum of 4" at all sides. Overhang will be secured at each corner of furniture with gummed paper tape to securely hold blanket in position."



Additional protection for the corners of this fine furniture.

Looking at these aspects of furniture packaging pays off in pleased customers and fewer damage claims.

The End

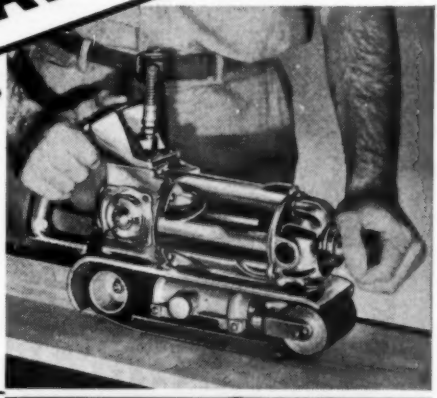
Those rainy days for which a man saves usually arrive during his vacation.—**Link-Belt News**

For every woman who makes a fool out of some man . . . there's another who makes a man out of some fool.

—Kreolite News

Portable Sanders

SAVE LABOR!



AMERICAN SANDERPLANE

Belt Sander handles more work and does it many times faster than a hand plane. Sands the material down to a new clean surface. Two models —with and without dust collector bag. Well-balanced, powerful, efficient.

AMERICAN SPEEDY SPINNER

Disc Sander saves time on many jobs . . . small, portable. Semi-flexible disc allows many uses of the Speedy Spinner on curved as well as flat surfaces. Also, complete attachments for drilling, paint mixing, polishing—no extras to buy. Soon pays for itself.

AMERICAN
PORTABLE SANDERS

Send Coupon Today!

THE AMERICAN FLOOR SURFACING MACHINE CO.
506 So. St. Clair St.
Toledo 3, Ohio

Please send complete descriptive literature and prices on the following—no obligation:

☐ American Belt Sander ☐ American Speedy Spinner

Name.....

Address.....

City.....State.....

PYRO-CELLO-FILM

protects the world's finest mastercraft wood products

Check ✓

THESE OUTSTANDING ADVANTAGES

- ✓ Adds Sales Appeal
- ✓ Provides Durable Protection
- ✓ Absolutely Heat Resistant
- ✓ Impervious to Fats and Greases
- ✓ Superior Alcohol and Acid Resistance
- ✓ Positively Moisture Resistant
- ✓ Exceptionally High Scratch Resistance
- ✓ Laboratory Tested—Proven in Use

Increasing numbers of manufacturers of fine wood products use PYRO-CELLO-FILM as a finish that will retain its original luster and loveliness through years of usage and wear. This amazing new *coat of protection* may be applied to all woods and wood veneers by the usual commercial methods without use of special equipment.

Over 60 years experience in the development and manufacture of outstanding finishes enables us to help you with any special wood finishing problem.

THE American VARNISH CO.
ESTABLISHED 1859
1126-40 NORTH BRANCH ST. CHICAGO 22, ILLINOIS

WRITE, WIRE OR PHONE *Today...*
for complete information about PYRO-CELLO-FILM and its application to your wood products.

BY H. H. CONNELLY

HOW IS YOUR SANDING I.Q.? PART I

CAREFUL SELECTION OF ABRASIVE IMPORTANT IN COST REDUCTION

ARE YOUR sanding costs low enough to bring a satisfied smile of contentment when the estimated production costs are examined, or do you grit your plates and hang onto the chair in utter despair and defeat?

High sanding cost stems from four major causes: Too fine or too coarse a grit; the wrong abrasive on the right backing or the right abrasive on the wrong backing; the right abrasive on the correct backing with the wrong bonding agent; or using a belt too long or throwing away too soon.

Too often a high pressure salesman equipped with more psychology than woodworking experience, will sell a bill of goods to a plant on the strength of impressive words and a tragically short trial. While on the other hand a careful, comprehensive acid test of cost and detailed analysis by longer trial runs will likely picture an entirely different result.

A reliable company of sanding abrasives is interested in reducing your cost through their product and most salesmen are keenly aware of good sanding practices and are glad to render valuable suggestions for improving various sanding operations.

A background knowledge of the types of abrasives, their characteristics and limitations is helpful when discussing sanding and weighing decisions to derive at the best type to use on each job in the woodworking factory.

Despite the many trade names for abrasives, there are only five that the woodworker need remember. These are garnet, flint, emery, aluminum oxide and silicon carbide. Of the five only the first three are natural abrasive minerals, mined and refined for commercial use. The remaining two are artificially made by combining elements under controlled conditions of high temperature in an electric furnace.

Garnet is, by far, the most important of the natural abrasives for sanding in the furniture trade. In addition to the convenient qualities of making a piece of paper rougher than a cob, it makes a very attractive gem for colorfully adorning milady's person on nights out.

The best garnet for abrasive use, comes from red almandite obtained in large crystals from the Adirondack

mountains of New York. It can be identified easily by its reddish color.

Garnet is one of the softest of the so-called hard abrasives, with a hardness of 6 to 7.5 compared, on the moh scale, with diamonds, the hardest substance known.

It lends itself to the greatest efficiency when the heaviest pressures are applied, and when the job being sanded tends to load the abrasive belt prematurely and burn the work being sanded excessively.

Since garnet is the cheapest grit, it is highly desirable on jobs that use paper by virtue of filling rather than wearing, as is the case of sanding pine and other fatty woods. It performs very satisfactorily on the drum sander, and edge sanding operations where a small area with heavy pressure is applied. Garnet is highly satisfactory on turning sanders where shredded paper or cloth is used for the backing. It is economical for sanding mouldings, as well as drawer dovetail sanding. For finishing paper, that becomes useless after a few strokes of the sandblock by virtue of filling the paper with varnish or shellac, the cheaper garnet is more economical. The grains of the higher priced artificial abrasives will fill just as often as the cheaper garnet and become a part of the waste sandpaper, cluttering the finishing room just as rapidly.

Flint holds little interest in today's scheme of sandpaper production, having neither the strength nor the stamina necessary for industrial use. Since historic days of the musket, flint has occupied an insignificent place of importance, making a comeback chiefly in the era of tailor-made cigarettes and the unpredictable cigarette lighter.

Flint is a quartz, off-white in color, and commonly found in many sections of our country. It is still used, however, as an abrasive for cheap sandpaper, now largely sold over the counter by paint and hardware stores to econo-

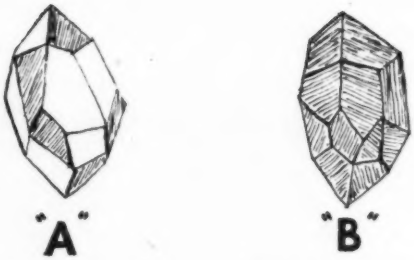


Fig. 1. Drawing shows enlarged crystals of emery and aluminum oxide grains. (A) Emery crystal with aluminum oxide shown in shaded portion. (B) Pure aluminum oxide crystal.

my minded, ambitious husbands who develop a taste for turpentine and an innocent itch for action on their afternoon off.

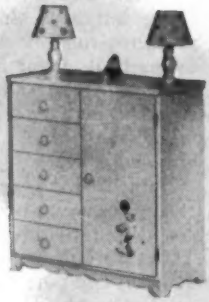
Emery is the oldest and possibly best known name of all abrasives. The best variety comes from Cape Emeri, on the Island of Naxos, from which it takes its name. Small amounts are produced in New York and Massachusetts.

It is dull black in color and unless properly labeled can easily pass for the harder more finely graded synthetic abrasives. Emery consists of crystals of natural aluminum oxide embedded in a matrix of non-abrasive materials such as iron oxide. Some varieties of emery show a fair proportion of cutting agent, but the grains themselves, irrespective of size, are composite and break down easily under impact. Figure 1 shows the similarity of synthetic aluminum oxide crystals to emery.

Aluminum oxide, the softer of the two synthetic abrasives mentioned, though harder than the natural abrasives, is characteristically brown in color. It is made by fusing bauxite with intense heat in an arc-type electric furnace. When pure, it is a white powder or it forms in colorless crystals. For abrasive purposes (generally pre-

ANOTHER SERVICE STORY FROM THE FILES OF PLASKON

LULLABYE FURNITURE CORPORATION



in baby's furniture, too . . . so much depends on the right use of the right glue!

Famous for quality children's furniture since 1897, Lullabye Furniture Corporation leaves nothing to chance—from selection of its wood to final finishing operation. Summarizing its experience with resin glues, Lullabye says: "We have been using Plaskon Glue for several years and find that we have had the least amount of difficulty in handling this glue, as well as the best bonding results of any glue we have ever used."

And Lullabye, like so many other firms distinguished for quality wood products, places equal value on Plaskon Technical Service. Here is a comprehensive service that can help you prevent the development of many glue line troubles—and aid you to solve those problems which do develop. Plaskon Technical Service and Plaskon Resin Glues will help you find the right combination for perfect bonding. Let us show you!

Plaskon makes a complete line of powdered and liquid resin glues for either high or low extension that are uniform in quality and stable in storage.

• ***Write for free descriptive booklet,*** *complete tables of properties and technical information on Plaskon Hot and Cold Setting Resin Glues.*

PLASKON DIVISION • Libbey Owens • Ford Glass Co., 2132 Sylvan Ave, • Toledo 6, Ohio
World's Largest Manufacturers of Urea Resin Glues
Also Producers of Molding Compounds and Coating Resins

Practical Tips

FROM THE GLUE MAKER TO THE GLUE USER

on the Technique of Spreading

Although a double spread is always best, spreading glue on only one of two surfaces to be joined is generally satisfactory. In laminating plywood, glue is applied by a rubber or metal roll, by brush or by spray gun. For ordinary work a rubber roll spreader with 12 to 20 grooves per inch is recommended.

The amount of glue depends on species of wood, how well it is cut, assembly period, moisture content, pressure and type of glue. It varies between 30 and 55 pounds of liquid mix per 1000 square feet of glue line. Heavy spreads are used on porous woods and lighter spreads on dense woods.

More complete information may be found in the Plaskon Glue Book.

PLASKON
RESIN GLUE

District Offices: Atlanta, Ga.; Chicago, Ill.; Greensboro, N. C.; Memphis, Tenn.; Milwaukee, Wisc.; New York, N. Y.

Canadian Agent: Canadian Industries, Limited, Montreal, P. Q.

ferred with some impurities) it is black in color and is dense in structure and resistant to maximum grinding pressure. The cutting action is due to the sharp minute crystals, a distinguishing feature of aluminum oxide from that of silicon carbide.

Silicon carbide is a bluish-black crystalline artificial mineral made in a similar process to that described for manufacturing aluminum oxide, except sand is fused with coke and sawdust, using salt as a flux. Its hardness approaches that of diamonds, a deciding factor in its favor for cutting hard surfaces. Unlike aluminum oxide, the crystals are large and it is crushed to make the smaller grain required for abrasive purposes.

Both silicon carbide and aluminum oxide abrasives are ideal when a high speed and reasonable pressure is used. They are both recommended for stroke sanding and polishing where high grade, quality work is desired. The synthetic abrasives are used very satisfactorily on the drum sander for clean, fast cutting operations in many plants. If phenolic glue is used as a bonding agent, the paper can be cleaned frequently by water. One concern dampens the rolls at quitting time each day and in the morning the wood fibers imbedded in the grits are swelled out of position and are easily removed, leaving the paper clean and sharp for another day's work.

How To Select
Proper Abrasive Sizes

Abrasive minerals are crushed, ground and cleaned to form sharp, crystalline sands which are further treated for capillarity to insure good bonding and then graded for size. Grading is by slow, careful shaking through silk sieves, hand woven for extreme accuracy as to size and number of openings per square inch. All abrasives used in technical coated abrasives are thus divided into 15 accurate sizes from the coarse number 4 (16 mesh) to the finer number 7/0 (240 mesh). The flour grades (finer than 7/0—240) are separated by water floating.

All of this means accuracy for you to help select from a wide variety of available grits the one best suited for your job and to obtain the quality desired at a minimum cost.

Two methods are used to apply the abrasives to the glue coated backing—gravity and electrostatics.

The gravity method is the older of the two and could be a modified form of the way the early artisan made sandpaper.

The electrostatic process is the newer and produces a particularly sharp and uniform abrasive by up-ending the sharp crystals in a bed of glue with their long axes at right angles to the backing and evenly spaced. This upending gives the abrasive crystals sharp, fast cutting power.

In applying the abrasives to the backing, two types or degrees of application are of interest to you from the standpoint of economical sanding—closed coat and open coat. Closed coat, by far the more general in use, is the type in which the abrasive is applied in such quantity as entirely to cover the backing. The open coat type of application has the abrasive evenly spaced to allow breathing or cleaning when sanding soft or gummy surfaces. It gives greater flexibility than a closed coat will permit as the backing is only from 50% to 70% covered.

Your selection of open coat would depend upon the material to be sanded. For sanding in the finishing room where the grains fill readily with sealer or wood filler, open coat is recommended. For sanding fatty woods, or soft woods that fill quickly, such as pine, it is very desirable.

How To Test
For Proper Grit Size

Your judgment in selecting the right

SAVE SANDING COSTS!

How Production-Wise Manufacturers Save Time and Money with AP JEWEL ABRASIVES

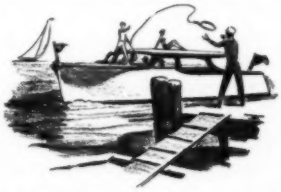
BEATS PAR

This prominent manufacturer of sporting goods had a problem finishing golf clubs. Tricky combination of wood and metal sent finishing costs sky-high. Finally switched to heat-resisting AP Bondite New Process Belts—says they outperform all other abrasives tried.

FINER FINISH

Much of the beauty of maple furniture depends on quality of finish. This manufacturer, dissatisfied with results, found AP Jewel Garnet Endless Belts did faster work than previous abrasives — gave finer finish at same time.

8 TIMES LONGER WEAR



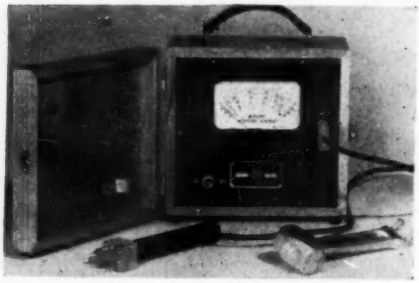
Torn covers on drum sanders were causing costly slowdowns finishing plywood sheets for this boat manufacturer. AP representative recommended change to AP Bondex Garnet Fibre. Manufacturer now reports, "These AP drum covers last 7-8 times as long as former abrasives".

Facts like these from manufacturer after manufacturer tell a story you can't afford to ignore. Find out what Jewel Abrasives can do for you now! See your distributor or write us today.

Abrasive Products, Inc.

SOUTH BRAINTREE 85, MASSACHUSETTS • MAKERS OF JEWEL COATED ABRASIVES

MOORE MOISTURE METER Makes



Quick, Direct Readings Up To 65% M. C.

Check moisture content of lumber or veneer—any time — with the Moore Moisture Meter.

1. Range from 6% to 65%.
2. Readings made direct from meter dial.
3. Small and compact — easy to set up, operate and carry.

Write for information today.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE FLORIDA | BRAMPTON, ONT. CANADA | VANCOUVER, B. C. CANADA | NORTH PORTLAND OREGON

size grit will determine the quality of finish and also the all important production cost. For the coarser the grit—less the labor—the poorer the finish. Equally as true is the reverse. The finer the grit—higher the labor—better the finish.

The danger of going too coarse is the least likely for the standard department will squawk to high heaven. But you will hear no yelling if the grit is too fine. That will be heard the loudest and longest when the sanding costs are compiled annually.

There is one simple test that you can use for pre-determining the grit most suitable for your job. Several sample panels of the part to be sanded are selected of representative stock. These panels are face sanded with the grits in question. Not one grit size to the panel face, but two; sanding one-half of each face (to insure the same grade of identical wood) with the abrasive size being compared. If the question involved is whether to use 3/0, 4/0, or 5/0, three panels will suffice. One-half of the first panel will be sanded with 3/0 and one-half with 4/0. Number two panel will be sanded with 4/0 and 5/0. Number three panel will be sanded with 3/0 and 5/0. These panels are then processed through the finishing department in the regular manner and final judgment of cost against quality can be determined once and for all by management and standards.

At the same time it is wise to have studies made showing the number of panels that can be sanded per hour by the operator and how many parts each belt will sand before it must be discarded as useless.

Few realize that a 25% increase in labor is made when going from a 3/0 to a 4/0 grit and 45% in changing from a 3/0 to 5/0 grit.

The End.

FAMOWOOD

FAMOWOOD PLASTIC

YOUR COLORS—
12 OF 'EM—and WHITE—
ALL READY TO USE

FAMOWOOD IS ALL READY TO FILL CRACKS FOR YOU—LARGE CRACKS and QUICKLY — *without waste — right out of the can.* IT APPLIES LIKE PUTTY—doesn't shrink—sands easily—"stays put"—is waterproof and weatherproof when properly applied. TAKES SPIRIT DYE STAINS FREELY.

Test this Production Product
Write for Sample

FAMOWOOD DOES EXACTLY THIS: Cuts down spoilage and waste—Cuts production costs—Helps reduce labor costs—Speeds up production. *Workers like its quick action.* IT STICKS TO ANY CLEAN SURFACE: Porcelain—Tile—Glass—Concrete—Etc.

IN YOUR COLORS—READY TO USE: White—Fir—Walnut—Mahogany—Birch—Oak—Red Oak—Maple—Redwood—Tupelo—Cedar—Alder—Ash. . . . TEST YOUR SAMPLE. . . . PACKAGED AS YOU LIKE IT: 6 oz. cans to 1½ lb. (gallon) cans.

FAMOGLAZE—THE FINEST GLAZING PLASTIC FORMULATED—"FILLS HAIR LINE CRACKS and MINOR DEFECTS—QUICKLY." Easy to work—ready to use. Like FAMOWOOD, sticks to any clean surface. . . . SNOW WHITE and MAHOGANY. . . . Convenient sizes, too.

FOMOSOLVENT, TOO—to keep these products in "top-working" condition.

Write for Literature, Sample. Name Product you Finish

DISTRIBUTORS — YOU CAN PROFIT, TOO. WRITE.

BEVERLY MFG. CO.

Manufacturers of FAMOWOOD, FAMOGLAZE and FAMOSOLVENT

9118 South Main Street **Los Angeles 3, California**

GIFT IDEAS

New gift ideas are suggested in the Aetna Plywood & Veneer Company 1950 Christmas folder, featuring 24 different wood inlay pictures. This folder is helpful to dealers, who are interested in unusual ideas for Christmas gift items, themselve, and to those wishing to make gift suggestions for over-the-counter sales.

On the front cover of the six page folder the Fishing Scene wood inlay picture is illustrated. Below the illustration, there is a complete list of the rare and interesting woods used in this particular picture, as well as the number to indicate where each piece of wood is placed.

Wood inlay pictures are especially interesting gifts because each picture is composed of unusual and exotic woods, imported from all over the world, including Brazilian Rosewood from Brazil, Koa from the Hawaiian Islands, Ojoche from Mexico, Avodire (Dyed) from Africa, Bubinga from West Africa and Prima Vera from Mexico and Guatemala. The woods are selected and adapted by highly skilled artist-craftsmen who carefully match the grain patterns of the woods in order to produce pictures of distinctive beauty.

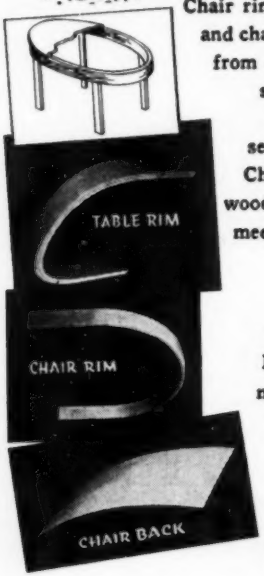
The brochure, "Aetna Plywood Inlay Pictures", containing 24 reproductions of pictures, is free upon request. Write to Aetna Plywood & Veneer Co., 1737 N. Elston Avenue, Chicago 22, Illinois.

PLYWOOD PLANT REOPENS

The Savannah plywood plant originally built by General Plywood Corporation at a reported cost of two million dollars, has been reopened by the Georgia-Pacific Plywood and Lumber Company.

The plant area is 220 acres with the buildings consisting of 135,000 square feet of floor space, and estimated production of G-P Crownply, and G-P Plysheet, brand names for plywood and veneers, is 1.5 million feet per month.

MAKE *Custom* STYLED FURNITURE
AT PRODUCTION PRICES
with KALWOOD
MOLDED PLYWOOD SHAPES



Chair rims, table rims and chair backs made from standard dies save you new die cost and set-up expense. Choice of hardwood finishes to meet your needs.

Find out how Kalwood can cut manufacturing costs while increasing salability of your products. Write for Kalwood catalog and estimates today.

Keller PRODUCTS, INC
Manchester 47, N. H.

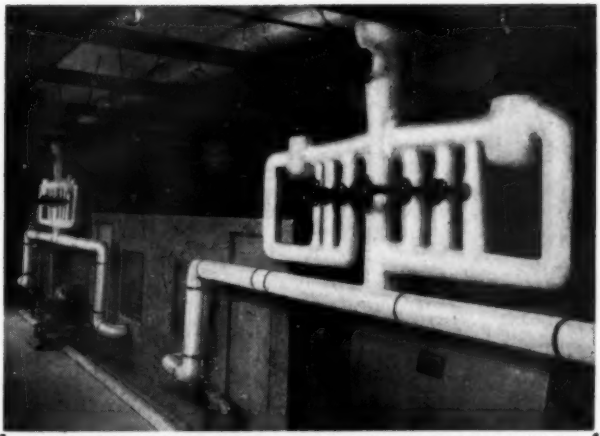
Modern Design Saves Lumber

Improved modern design of furniture is bringing better lumber utilization and less waste, Frank T. Parrish, experimental and development manager of the Heywood-Wakefield Company, Gardner, Mass., said at the fall meeting of the American Society of Mechanical Engineers.

He added however, that although the modern design approach to new furniture styling is broader in scope now than at any time in its past history, the furniture industry is still dragging along the dead weight of tradition.

Mr. Parrish said part of this was inherent, due to the fact that furniture or cabinet making has been a craft industry for hundreds of years. Few of the noted furniture designers of the past, he said, were rated as scholars of engineering or masters of sciences.

The design and development of new furniture today requires even more



OVERHEAD EQUIPMENT ROOM

IMRIE Sipho-Fan operating equipment is always located outside the kiln proper . . . In a light . . . clean . . . dry room either overhead or at one end of the kiln. Sipho-Fan equipment is especially adaptable to this type of kiln construction and our customers report it has many advantages, among them are

- **ECONOMY of Installation**
- **ECONOMY of Operation**
- **ECONOMY of Maintenance**

In addition, IMRIE Kilns give perfect accuracy for fine quality drying thru ElectroniK Control . . . No other kiln combines all the advantages of the IMRIE Sipho-Fan System. Write today for detailed information.

IMRIE Sipho-Fan Kiln equipment is equally efficient whether located above or below the kiln.

IMRIE DRY KILN COMPANY
PEARL & OTTAWA ST. GRAND RAPIDS 2, MICH.

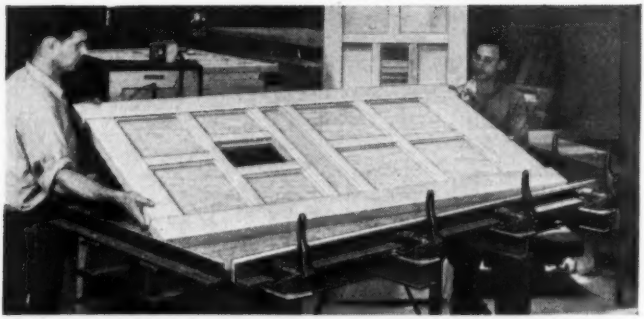
thought and study than we would expect from an industrial designer of a complicated machine of metal and plastics. Furniture designing requires a thorough knowledge of customers, requirements, style line, material characteristics and material economy, he said.

Sales Appeal vs. Utilization

Today's furniture designer must keep one eye cocked on sales appeal and the other on the design and development of specifications and methods to assure a greater lumber yield or utilization of nature's greatest gift to man, wood. Furniture design strictly from the standpoint of lumber utilization is still not the guiding star of designers or manufacturers even today, he said.

The key to reducing lumber waste is design and specification, Parrish declared.

"Frequently due to economic pressure, periodic drives have been made to reduce lumber waste," said Mr. Parrish. "Seemingly after some success at each attempt, a war period or boom-time would follow and all that had been



20 TIMES MORE PRODUCTION with DE-STA-CO TOGGLE CLAMPS!

De-Sta-Co Toggle Clamps speed production for this door manufacturer. Six Model 640 clamps are used in the fixture to obtain quick clamping action and positive holding pressure, evenly distributed. The use of a dielectric bonding device and new-type fast-drying glues speed the drying cycle to such an extent that the fast action of De-Sta-Co Toggle Clamps is required to maintain a high rate of production. Result: 20 high quality exterior doors in five hours; ordinarily, 1 door would be processed in this time.

You can select from 40 models of De-Sta-Co Toggle Clamps for progressive, modern tooling to meet today's competition. Their well-engineered design and rugged construction give you *quick* clamping and *positive* holding pressure. Whatever your work holding problem, there's a De-Sta-Co Toggle Clamp to solve it.

See the complete line of De-Sta-Co Toggle Clamps in our illustrated catalog, No. 49. Write today for *your* copy and the name of the stocking representative in your area.

DETROIT STAMPING COMPANY
312 Midland Ave. • Detroit 3, Michigan

gained would be lost.

"This was the case as we went into World War II and emerged into the postwar boom period that followed. A terrific pent up demand for wood products existed, particularly for furniture. With such a demand for goods, all thought and pressure by furniture manufacturers seemed to concentrate on just one thing—to cut up more lumber.

"Erroneously, the lumber cut has too frequently been the general measuring stick for furniture production rather than the correct factor of net footage cut or yield. Lumber waste that had been methodically reduced through careful study and practice during the late 30's to perhaps the lowest point in history soared in the late 40's to a new high for recent years."

Higher Grades Scarcer

"Once again management has become aware of this costly lumber waste and cognizant of the fact that to get more furniture production, something other

NEW! TAG Midget Moisture Meter

Checks Lumber, Woodwork—Even Plaster!

Now you can *know* when to paint: New TAG Midget Moisture Meter shows when wood or plaster is dry enough for peel-proof painting!

Convenient!

Just apply electrodes... press button... read percent moisture direct!

Accurate!

Compensated for battery voltage changes... internal polystyrene insulation!

Inexpensive!

A sturdy, high-quality, low-cost precision instrument!

WESTON ELECTRICAL INSTRUMENT CORPORATION

TAG

Manufacturers of Tagliabue and Weston Instruments

614 Frelinghuysen Avenue, Newark 5, N. J.

than just cutting more lumber is required. The findings of tests made today are somewhat different from previous studies. The high waste is now due to the accepted fact that the better grades of prewar lumber with the long clear cuts are lacking. The reason—a growing scarcity of the higher grades of lumber and a greater percentage of the lower grade in every load.

"From this it is apparent that the old approach of trying to reduce the lumber waste percentage or to improve the yield by studying such things as the cut off operations or the ripping and matching methods, or even better lumber handling and kiln drying practice would gain very little.

"The answer, seemingly stares you in the face. It boils down to a specification and design problem."

Mr. Parrish said that because of customer resistance to the use of the hardboards in furniture where wood in its recognizable form has been accepted for so long a period, the veneer or plywood panels are a long way from becoming obsolete.

Easy's

STRATE-LINE SANDING

Builds PROFITS, not MUSCLES

Quality work *plus SPEED!* That's what makes profits for your professional rental customers—painters, carpenters and others. Makes pleasure, too, for your neighborhood over-the-counter sander renters—hobbyists, boat and home owners, etc. This profit and satisfaction for your customers means profits for you from rentals *and related materials sales,* such as sandpaper, brushes, paints and other supplies.

Easy's **built to take the abuse of rental service, a *real production tool* with a world-wide reputation for long life and trouble-free performance. Combined with the quality work of *Easy's* Strate-Line Action—no curlicues, chains or other hard-to-cover abrasive patterns—it's a natural for a sucessful rental business.**

Write for catalog sheets today.

DSM DETROIT SURFACING MACHINE COMPANY

1278 E. EIGHT MILE RD. • DETROIT 20, MICH.

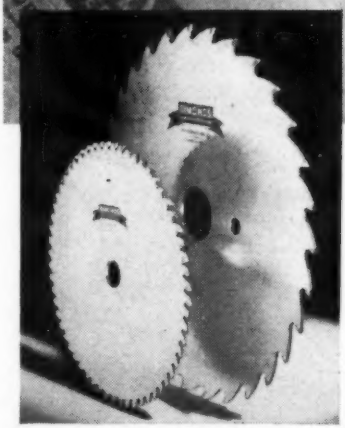
"I have particular reference to the resistance of buyers to the use of hardboard for case backs, dust panels or drawer bottoms," he declared. "In drawer bottoms, one could find a sound reason as they are visible, but for backs and dust paneling they should find acceptance except for tradition. Even now there are grained hardboards that are true likenesses of plywood panels on the market. It appears to be just a case where time will tell; the designer can do little more, it is up to the public to elect or reject."

OPEN FOR BUSINESS

Wood-Craft Manufacturers suffered a severe fire loss toward the end of September. We are glad to hear that plans are now underway to rebuild the factory and offices.

Production has already begun on their regular line of merchandise—kitchen cabinets, tables, corner cabinets, tennis tables, etc. We are told that all correspondence can be directed to the Company at 601 S. Longwood St., Baltimore 23, Md.

These Carbide Tips give you Hundreds of Times the Cutting Life of Regular Saws



For straight-line or glue-joint ripping and for rough cutting-off on Swing or Radial type machines, a coarse tooth saw (shown above right) is recommended. Fine tooth saws (shown above left) are recommended for use on Double End Tenoners and for ripping or trimming plywood, laminates, etc. and for normal cut-off requirements.

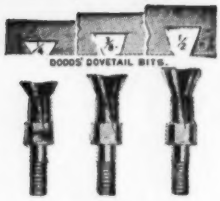
. . . on Hardwoods, Plywoods, Plastic Impregnated Plywood, Laminates, Fibreboard, etc.

Cutting edges that stay sharp for weeks, sometimes months . . . smooth, straight cuts that need little or no finishing . . . record-breaking uninterrupted work runs . . . dependable, trouble-free, proven performance with savings all along the line . . . all this and more is now yours with SIMONDS CARBIDE TIPPED SAWS.

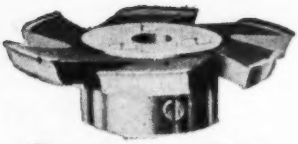
Made to Simonds rigid, high quality standards in sizes, tooth spacing and fitting for specific applications. Ask your local Simonds Distributor today for new, illustrated fact-packed folder . . . see how you can step up production and cut your costs with these specially designed SIMONDS SAWS.

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

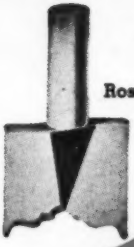
Branch offices in Boston, Chicago, Los Angeles, San Francisco and Portland, Ore. Canadian Factory in Montreal, Que.



Dovetail Cutters

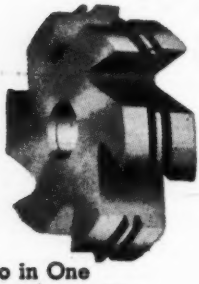


Champion Cope Cutters



Rosette Cutters

Carving Machine Cutters



Two in One
Glue Joint Cutters

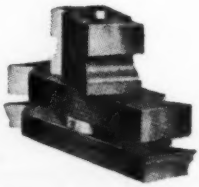
HARD TO GET ? no!

Plug Cutters

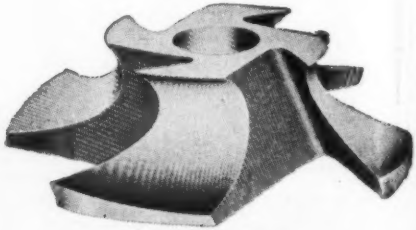
Rounding Over Cutters

Champion Check Rail Cutters

Champion Shaper Cutters



Sash Cutters



Solid Steel Shaper Cutters

WOODWORKERS TOOL

NOW HANDLING NEW DE WALT ALL-PURPOSE

WE HAVE THEM

WRITE FOR OUR LARGE, COMPLETE CATALOG

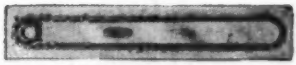
Router Bits

Hand Hole Router Bits

Spur Machine Drill

Carving Tools

Multi Spur Bits



Mortise Chains

Adjustable Fly Cutters

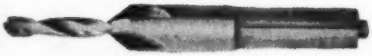
Sash Pulley Bits

Lathe Centers

Forstner Auger Bits

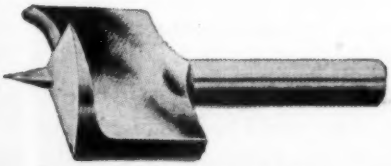
Mortising Chisels

Machine Bits



Taper Countersinks

Turning Chisels



Machine Center Bits

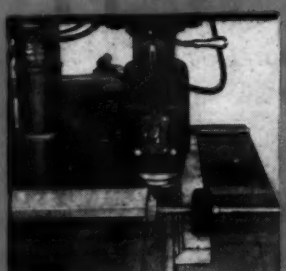
Dowel Bits

WORKS . . . 220 SO. JEFFERSON ST. CHICAGO 6, ILL.

WOODWORKING MACHINES . . . . TURN PAGE

New! DE WALT
SAFETY POWER FEED!

POWER FEED RIP



POWER FEED SHAPER

POWER FEED RABBETING

Here's a POWER FEED that you can own and operate at surprisingly low cost!

This Power Feed can be attached to any DeWalt machine quickly, and lifted out of the way, in a matter of seconds, leaving machine free for all the 101 DeWalt operations.

The Safety Power Feed is equipped with live rollers for both the in-feed and off-feed ends of the material. It can be adjusted for speeds up to 120 ft. per minute. It holds material firmly against the fence to insure accurate cuts—is adaptable for different thicknesses of material.

Most Power Feed Rip Saws can handle lumber *only* in a straight rip position. DeWalt's Power Feed can be used also to bevel rip at any angle, plough, groove, rabbet (straight or at an angle), shape and run mouldings.

Remember, this is a complete power feed unit, including motor, switch, 3-speed drive and hinge mounting for attaching.

The price is amazingly low—only $199.00 f.o.b. Lancaster, Pa. *Just 80 cents a day over a year's period.* If you do not own roller extension tables, one pair of rollers may be secured for $12.50 additional.

Write for full information about this new Power Feed now. DeWalt Inc., 411 Fountain Ave., Lancaster, Pa. Subsidiary of American Machine & Foundry Co., New York City.

DE WALT

WOOD Industry Notes

PAISLEY OPENS CHARLOTTE OFFICE

Mr. Joseph Morningstar, president of Paisley Products, Inc., has announced the opening of a sales and technical service office at 825 West Morehead St., Charlotte, N. C.

The new office will provide sales and service coverage for North and South Carolina and parts of Virginia, Georgia and Eastern Tennessee on the full line of Paisley starch and dextrine bastd adhesives, flexible animal glues, resin and rubber emulsion cements and casein glues.

COLUMBIA STOCK CONTROL SHIFTED

Control of the Columbia Machinery & Engineering Corporation of Hamilton, Ohio, has recently been acquired by a New York interest. The new board of directors are: James A. Walsh, chairman; Alfred Schwarzenbach, president of Schwarzenbach Huber Co.; William F. Thompson, partner of Greene & Co.; and Allan Merrill, Ford Motor Car Co. All directors are now actively engaged in industry and finance.

John R. Queen, formerly of Allis-Chalmers Manufacturing Co., has been elected president to succeed James C. Hart. Other new officers are J. V. Delaney, treasurer; Lamar Jackson, secretary and Paul G. Pater, assistant secretary.

There will be no change in company name and the present line of hot and cold hydraulic presses for the woodworking field and other allied equipment will be continued. Columbia is the successor of the Long & Allstatter Corporation and dates back to 1858.

WESTINGHOUSE APPOINTS

J. K. Hodnette, vice president and general manager of industrial products for the Westinghouse Electric Corporation, Pittsburgh, Pa., has announced the appointment of **L. R. Ludwig** as assistant to the vice president.

Formerly manager of the Westinghouse Motor and Control Division in Buffalo, N. Y., Mr. Ludwig is assigned responsibility for product development and in this capacity can draw on his experience in the field of development engineering.

U. S. PLYWOOD

White Aircraft Corporation's plant at Palmer, Mass., recently made available for manufacture of United States Plywood Corporation products, is now working almost exclusively for the armed forces, J. Bryan Williams, Jr., vice-president of the plywood company, announced. Products being made include honeycomb building panels, portable Arctic shelters and vans, plastic Glasweld tubing and piping, radomes and carrying cases of Armorply which is thin metal bonded to plywood.

"SAWDUST" HOUSES

People who live in sawdust houses will pay less for them. Robert A. Caughey, addressing the fall meeting of the A.S.M.E., went on to enumerate other advantages of this new synthetic board.

Mr. Caughey, research director of Souegan Mills, Wilton, New Hampshire, said low cost, high quality synthetic lumber made of pressed sawdust and wood shavings bonded with synthetic resin may be produced from logs or wood which the lumber operator now considers to be either decidedly inferior or completely unusable. Houses in which the synthetic lumber is used will be cheaper since the synthetic boards require less labor to produce, cost much less than conventional lumber or plywood and are easier to handle.

At the present time, he said, there is little doubt that a synthetic board can be made for most of the applications where wood is now used, often doing a better job than lumber is now doing. With a reasonable volume of production, the number of board feet of the synthetic boards produced per man day will be much higher than the ordinary lumber.

Not the least of the advantages of the synthetic lumber is the tremendous saving it can effect in the nation's lumber reserves. It is more or less generally agreed that in producing lumber for building purposes, furniture, etc., less than 30 percent of the wood in the log reaches the ultimate consumer. And of this 30 percent, he added, a very considerable portion is of inferior quality.

Practically all of this tremendous waste, the research director, declared, could be utilized in the manufacture of synthetic lumber.

"The yield in terms of pound of finished product, per pound of raw material may be close to 100 percent," Mr. Caughey declared.

He called the synthetic lumber an "ideal board" declaring that it could be used as sheathing, roofers, subfloors, etc. and had great nail-holding power and strength.

"Sawdust" boards, he said, produce a structure with greater rigidity than lumber, insulating sheathing or gypsum board which will hold its shape better because the effect of the wind and other forces will produce less enlargement of the hole around the nails than is the case with any commonly used material except plywood.

In contrast to insulating siding and gypsum board, Mr. Caughey declared, the nail-holding power of the synthetic board will be equal to that of lumber, permitting completely random nailing of shingles, clapboards or other siding without the use of special nails.

He added that it will not burn down as easily as a wooden house since the synthetic lumber is much more fire resistant than wood.

For certain types of synthetic board, all the production details have been solved, Mr. Caughey said. At the present time, two types of synthetic board are in successful commercial production, at a rate of several million feet per year in one small plant alone.

NOTES ON THE N.H.L.A. CONVENTION

The National Hardwood Lumber Association convened in Cincinnati the latter part of September. A definite feeling that this convention marked a turning point in the industry seemed to predominate.

Among new developments was the Junior Conference—the men in the organization under 40 would meet together to become better acquainted and possibly to develop new ideas, energy and growth for the Association.

New officers and directors are: Lee Robinson, Mobile River Saw Mill Co., Mt. Vernon, Ala., president; James C. Walsh, Upham & Walsh, Chicago, first vice president; Harry D. Gaines, Gaines Hardwood Lumber Co., St. Louis, second vice president; T. M. Millett, Millett Hardwood Lumber Co., Louisville, Ky., third vice president.

Five new directors are: Frank W. Hutcheson, W. Norman Fox, Geo. E. Dansereau, John E. DuBois, Bernard Bock. John W. McClure, secretary manager, was reappointed by the board of managers as executive officer for the coming year.

THE ELECTRIC

LESTO

PORTABLE HAND-SAW

Designed, Manufactured and Patented by Scintilla, Ltd., Switzerland, since 1944.

Saw Where You Wish

Powerful new portable saw will start in middle and cut curves anywhere on the job.
Few tools can approach the versatility of the Electric LESTO Saw. Its finely ground, projecting blades saw at 2400 strokes per minute, with uniform power throughout each stroke—sawed edges are left virtually smooth. Gears and bearings are contained in a separate unit sealed against sawdust and dirt. Cutting lines are kept sawdust free by built-in blower fan.

Cuts Metal Too

Special blade can be used to cut any kind of metal.
SEVERAL THOUSAND ALREADY IN USE IN THE UNITED STATES.

Sold and Serviced throughout the World.

For further information regarding descriptive literature and names of distributors serving your area, contact:

SALESMEN WANTED

VICTOR KRIEG

15 Moore Street **New York 4, New York**

CONSOLIDATED FREIGHT CLASSIFICATION

PACKAGE 32F

METHOD 32 F

Courtesy of

DIXIE FURNITURE COMPANY, INCORPORATED

Lexington, North Carolina

JIFFY MACERATED PADS & BLANKETS meet all requirements of "non-abrasive padding material" as required by the Consolidated Freight Classification.

The above illustrations show JIFFY PADS and BLANKETS being used for protecting furniture under the specified method of packing.

In addition to protecting the finished furniture surfaces, JIFFY PADS and BLANKETS provide the proper cushioning and protection, so necessary to insure safe delivery to destination.

Our Trained Packaging Engineers will be glad to assist you at your request. Write for full information.

"If it's properly packed it's packed in Jiffy"

JIFFY MANUFACTURING COMPANY

GENERAL OFFICES: HILLSIDE, N. J.

PLANTS: HILLSIDE, N. J. • HIGH POINT, N. C. • SALEM, ILL.

Pacific Coast Representative: RAY T. EBERT CO., P. O. Box 550 Redwood City, California

Veneer, Plywood and Laminated Wood Section

Features

Veneer and Plywood
Techniques in Hardwood
Plywood Quality Control

AETNAPLY tips on how to save money

...when using PLYWOOD

1 **Buy smaller panels.** Standard sizes like 3′ and 4′ widths with 4′, 5′, 6′, 7′ lengths cost less in AETNAPLY Hardwoods. Figure smallest panel for your cutting sizes.

2 **Use No. 1 grades** when cutting up panels. No. 1 grade has sound face and allows pieced veneers as in Birch and Maple plywood.

3 **Practice cutting and finishing** techniques on waste panels before using standard sizes for the final run.

NEED PLYWOOD?
Aetna may have just what you want — send in your inquiries.

AETNA PLYWOOD & VENEER CO.

1737 N. Elston Ave. Chicago 22, Illinois
AR mitage 6-7100 Teletype: CG305

BRANCH WAREHOUSES: Grand Rapids, Indianapolis, Rockford, Ill.
SALES OFFICES: Detroit; Milwaukee and Green Bay, Wis.; Minneapolis; Virginia Beach, Va.; Marion and West Lafayette, Ind.
SEE PHONE BOOK

Veneer and PLYWOOD

By Ned Bailey

Part IV

DURING THE last 50 years there has been a noticeable joining of forces, so to speak, of those interested in the production of veneer and plywood. Materials, machinery, methods and processes have all been improved in many cases by cooperative effort on the part of the various interests concerned. This is in addition to the excellent work done by the Forest Products Laboratory at Madison, Wisconsin, under the able direction of George M. Hunt. Money, time, "grey matter" and "elbow grease" have been used for research and laboratory experiments. The end result is that today we are able to produce more and better veneer and plywood for less money. In many cases inferior quality woods have been upgraded when made into veneer and plywood by using modern methods.

It seems rather ironical that much of the progress in this country is attributal to the demands of the two last wars. However, the impetus given at those times has been carried on subsequently so that continuing progress is being made. Also, many of the facts learned in research in the veneer and plywood field have helped solve problems for those in search of ways and means of utilizing wood waste.

What Is In A Name?

We certainly live in an ever changing world! Words and their meanings have not escaped this form of evolution. For example, take the word veneer. Back in the middle of the 18th century "furnieren," as the Germans called it, was a form of "fineer" while the French "fournir" meant to "furnish." The dictionary at the time said: "—1. To apply or fix as a veneering; —2. to cover or face with veneer; —3. to invest with a merely external or specious appearance of some commendable or attractive quality; —4. and as Alfred Lord Tennyson referred to it, 'And one the master, as a rogue in grain veneer'd wtih sanctimonious theory'."

There are many today who still take the word veneer to mean merely an external show of quality. In fact, anything veneered is subject to suspicion as to its intrinsic worth. Too often anything veneered is considered a substitute rather than a genuine product. Slowly the dictionary and encyclopedia

Pictured First Page This Section
Effective use of plywood in a modern restaurant. Table and counter tops are plastic surfaced for longer wear.

editors are coming around to the point where they are including wood in their definitions of veneer. "Webster's New International Dictionary" refers to veneer as "A thin sheet of material such as a layer of valuable or beautiful material for overlaying an inferior one, especially such a thin leaf of wood to be glued to a cheaper wood. Any one of the layers glued together to impart stiffness and strength to plywood; to veneer furniture with mahogany, hence to coat or face with any material giving a superior surface" etc., etc. However, in addition the editors still cling to "superficial or meretricious show; gloss." In England the British Standards Institution refers to veneer as "timber in the form of a thin layer of uniform thickness, produced by slicing, sawing or rotary cutting." While our own Forest Products Division of the U. S. Dept. of Commerce calls it "a thin layer of wood, usually in a large sheet."

We must acknowledge that there was a time when the word veneer earned all the unpleasant definitions that were attached to it; let's hope those times are gone forever.

Preparation of Logs for Cutting

Like many other operations on wood, proper preparation is a prime essential in making veneer. Before rotary cutting or slicing, the fibres of the wood must be softened by steaming or cooking in hot water. When either is not done properly checking and fracturing of the wood fibres takes place which mean poor quality and hard-to-work veneer. Woods, such as poplar, basswood, cottonwood, European birch, Oregon pine and the European pines, are often cut cold. Some of these woods tend to produce fuzzy veneer when cooked. However, Douglas fir plywood manufacturers steam or cook their logs before cutting as do practically all manufacturers in this country. It has been found by the use of either of these methods of preparation the natural adhesives holding the wood fibres together are softened and that the resin in the timber is to some extent dissolved.

There is some difference of opinion as to which method of softening the wood fibres is the best. The Forest Products Laboratory at Madison, Wisconsin, claims the shrinkage of veneers in drying show little variation after either steaming or cooking. Cooking is generally preferred to steaming as it is believed that the process is gradual, better controlled and less likely to damage the wood structure; whereas the steaming method is more abrupt and might do some damage. There are advocates of the steaming method that believe they obviate this hazard by introducing free steam directly into piles of logs and bolts. Steaming is more adaptable to species that do not rupture under rapid and sudden increase in heat. A little departure from the direct steaming process is to cover the pile of logs with its own sawdust and allow the steam to seep slowly through the pile. This method is popular with more valuable species such as walnut. Although it is slow, this sort of stewing process tends to darken the lighter color of the sapwood, which makes the veneer more saleable.

Inserting logs into water where the temperature is too high often results in logs cracking, they should be placed in vats when the water is moderately warm, then the temperature can be gradually increased. Cracking and split-

ting losses can also be reduced if the cutting of the logs into the desired lengths is done **after** the cooking and steaming. The vats under these conditions must be long enough to hold the largest logs.

In these preparatory processes the time and temperature vary with the species, size and age (which means since the tree was felled), and the character of the veneer to be cut. It has been found from experience that the more dense, or harder, the species and the more difficult to cut, the longer it takes to prepare, and as a rule the lower the temperature required. Very low temperatures, about 100°F for several days, are required for stumps and crotches for slicing. This is due to the fact that so much of the cutting is across the grain, and the fibres will not be separated, but actually severed.

The cooking or steaming vats are placed between the log yard and the entrance to the mill where the cutting equipment is located. The vats are covered securely and pipes for either steam or boiling water is piped to them. Logs for the veneer mill are cut into flitches before being steamed or cooked.

It is advisable to build vats in two or more compartments in order to secure consistent results. By having two or more, the hard textured wood can be separated from the soft and the short logs from the longer ones. Care should be exercised to see that logs are cooked the right length of time — too long is as bad as too short; in either case smooth cutting is made difficult. The sapwood is usually too soft for cutting when the log is first removed from the vats. However, it will cool off during bark removal and journey to the saws or lathe.

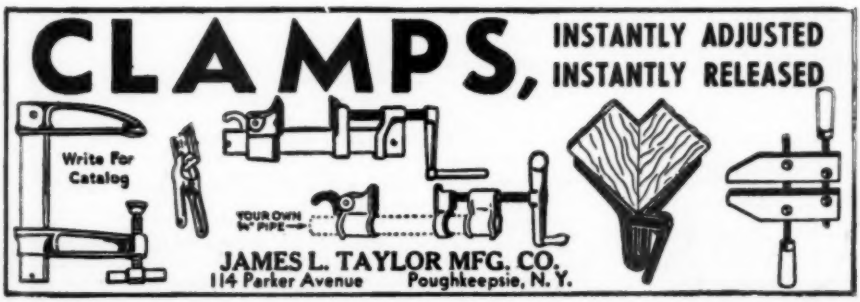
When the logs are removed from the vats they must be barked immediately and cold cut logs must be debarked before cut into working lengths. Much of the debarking is done manually with axes and chisel type bars, and debarkers are used where smooth, straight, round and well tapered logs are in use. The log is ready for cutting when the center axis has been marked and it is usually taken to the lathes or knives by an overhead crane. It is then swung into position and when centered in the lathe the holding bits on the main shaft are driven home.

Next issue "Veneer Cutting Equipment".

• • •

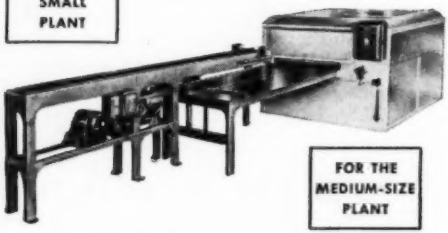
READER SERVICE

For locating equipment, supplies or machinery, write our Market Service. We are glad to help you.

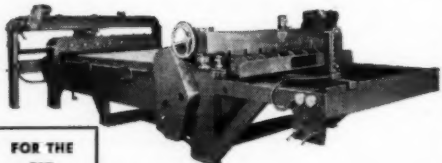


NOW ...LOWER EDGE-GLUING COSTS
...FLATTER, BETTER PANELS
...HIGHER DAILY PRODUCTION
FOR ANY SIZE OPERATION

FOR THE SMALL PLANT



FOR THE MEDIUM-SIZE PLANT



FOR THE BIG OPERATOR

No matter what your requirements, Plycor can supply the proper-edge-gluing equipment to produce the finest in glued-up panels and core stock at high speed and lowest cost.

The Junior Electrogluer

A One-operator machine for plants requiring a production of 4000 to 8000 sq. ft. per day. It's exceptionally efficient and equipped with a Westinghouse High Frequency Generator and finger-tip control. Fast heating, maximum heat transfer and high joint pressure result in a fully cured, flat panel at exceptionally low cost.

The Electrogluer

This unit requires 2 or 3 operators and is for plants requiring 8000 to 10,000 sq. ft. per day. It is equipped with a 10 KW Westinghouse High Frequency Generator and conveyorized glue spreader. Automatic top and side pressure cylinders and fast heating insure a perfect bond, imperceptible glue lines and a truly flat panel. Five sizes from 32" x 78" to 50" x 100".

PLYCOR Hydraulic Lumber Press

For use where continuous, maximum production is required. Conveyorized glue spreader insures fast feeding and evenly spread glue. Speedy, even curing is provided by steam heated steel platens. It produces a continuous ribbon of glued-up stock up to 86" long and from ½" to 2" thick. Glued-up stock is flat and uniform in thickness requiring only a skin-cut in the finish planing.

• • • •

Before you buy any edge-gluing equipment, discuss your plans with a Plycor representative. There's no obligation. Meanwhile, write us for descriptive literature.

The Plycor line also includes Hydraulic Hot Plate Presses from 1 to 20 openings; Electronic Assembly Presses; Hydraulic Cold Presses; Hydraulic Precision Veneer Jointer-Cutters; Glue Spreaders; Glue Mixers; Retaining Clamps; Panel Sizers; Traveling Head Veneer Jointers; Tapeless Veneer Splicers.

PLYCOR COMPANY

Division of

Earle Hart Woodworking Machine Co.
565 W. Washington Blvd. Chicago, Ill.
Telephone RAndolph 6-4970

Techniques in HARDWOOD PLYWOOD *Quality Control*

BY JAMES BETHEL AND ROY CARTER

Statistical quality control methods which have been used successfully in many industries have been adapted to the problems of quality control in the manufacture of hardwood plywood. The proper use of the control chart technique provides the production manager with a useful tool for improving plywood quality and increasing the uniformity of the product. The use of statistical quality control methods can also assist in the reduction in waste and degrade.

INTEREST IN improving the quality of hardwood plywood has been increasing during recent years. Evidence of the fact is the development during the last three years of an active quality control program by the Southern Plywood Manufacturers Association. This program, includes a laboratory plywood testing program, sponsorship of a gluing clinic and operation of an industry wide grading school for the training of plywood graders. Further indications of an increased interest in quality on the part of hardwood plywood manufacturers is the action of the Hardwood Plywood Institute and the Southern Plywood Manufacturers Association in promoting improvement in the grade and glue line requirements of the hardwood commercial standard in recent revisions.

This interest in improving the quality of the final product has quite naturally led to an active interest on the part of manufacturers in improving the manufacturing process and in control over the quality of the materials entering into it. It has been well established that quality control in plywood manufacture cannot be accomplished simply through inspection of the final product but must be devoted to control of the entire production operation. The quality control procedure normally includes the two functions of testing and inspection. The testing function is a laboratory job which will include testing the quality of the glue bond and may include tests for veneer moisture content, glue quality and other similar items. The inspection function involves examining materials and processes to insure that they conform to established quality standards. At the green end, inspection would include examination of veneer for smoothness of cut and accuracy and uniformity of thickness. The drying operation would be checked for proper and uniform veneer moisture content. Green and dry clipping operations would be inspected to insure that dimensions were correct and that veneer was cut square. Taping and splicing operations must be inspected for quality of joints. In the glue room, inspection would cover glue mix and spread, lay

up, press operation, time-temperature curing cycles and conditioning and hot stacking. The finishing inspection will include checking the finished panel for grade, size and thickness, squareness and sanding.

It is obviously uneconomic and unnecessary to make all of these inspections by quality control personnel continuously. Inspection, therefore, must be essentially a sampling process and it is always a quality control problem to determine how intensive this sampling should be. If it is too intensive, inspection costs will be excessive. If it is too cursory, control will not be maintained.

Advent of Statistical Methods

The search for methods which could be used to produce hardwood plywood has led in several instances to the adaptation to plywood manufacture, of statistical quality control methods which have proved valuable over a period of years to quality control engineers in other industries. Preliminary exploration suggests that many of these methods are useful tools for the improvement of average quality and uniformity in quality. In addition these quality control tools give high promise of pointing the way to reduction in costs through savings in labor and materials. They provide methods of determining the proper level of inspection required to control quality without conducting expensive over-inspection.

It is not the purpose of this paper to cover all of the elements of hardwood plywood manufacture which are susceptible to statistical quality control nor to attempt to include all of the statistical treatments which can be used in such control. There are ample data published covering adaptations of the various control techniques to a wide variety of production problems which are available to plywood plant management interested in the use of this tool. It is the object of this paper to examine the application of some statistical quality control techniques to a few specific problems as an indication of the way in which the method can be used.

Statistical Method in Controlling Veneer Moisture Content

One of the critical problems continuously faced by plywood manufacturers is that of maintaining adequate control over the moisture content of the veneer going into the product. The moisture content selected as the target of the drying process will depend upon the equilibrium moisture content conditions in the plant, the E. M. C. conditions expected in subsequent storage and use, the veneer moisture content requirements of the adhesive being used and on other factors. The range of moisture contents above and below the target moisture content which can be allowed will depend upon such factors as the seriousness of warp as a defect in the

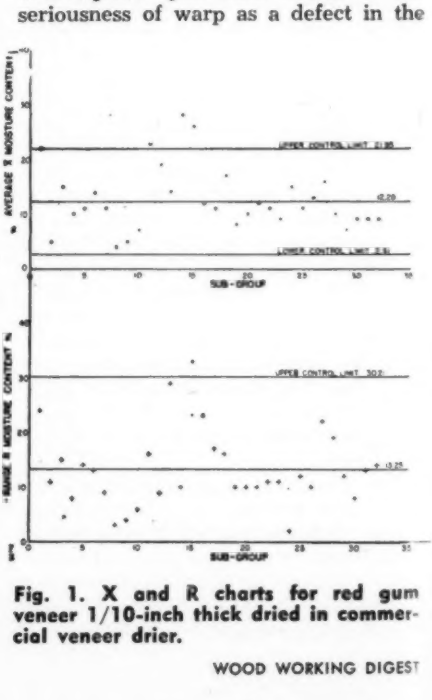


Fig. 1. X and R charts for red gum veneer 1/10-inch thick dried in commercial veneer drier.

final panel, how critical are the working properties of the adhesive, what degree of moisture resistance is required of the finished panel and other similar items. For any veneer drying operation there are limits to the variation in moisture content which can be permitted if production is to be efficient, if the number of rejects kept within reasonable limits and if the final product is to meet the appropriate specification requirements. Regardless of whether these limits are precisely known or measured they nevertheless exist.

When it is desired to exercise control over the veneer drying process the Shewhart[1] control chart method of statistical quality control is a useful management tool. The use of the control chart will not in itself result in control of the quality of the veneer drying operation but it will give the production manager a basis for determining whether his drying operation is under control, and if not it will provide him with clues as to the actions which can be taken to bring about control. Further it will tell him whether the process is sufficiently accurate to provide him with an acceptable product even when statistical control is present. Fig. 1 illustrates a portion of a control chart prepared according to Grant[2] for average X and Range R for a veneer drying operation on 1/10-in. red gum veneer. The X chart shows the hourly moisture content values plotted. Each sample consists of the average of four moisture content determinations taken at random. Moisture content was obtained by the oven method. The center horizontal line represents the average for the data and the remaining two horizontal lines represent upper and lower control limits of three standard deviations.

At the time these charts were prepared the manufacturer was attempting to obtain a ten percent moisture content. A urea-resin glue was being used whose veneer moisture tolerance limits according to the glue manufacturer was between 5 percent and 15 percent. Examination of this control chart reveals several interesting facts concerning the veneer drying process. The points falling outside of the control limits suggest that the process is out of control[3] and that there are assignable causes for the excess variation in the average and range that can be determined and corrected. It will also be noted that the average X of the X's has a value of 12.28 percent moisture content instead of the 10 percent target moisture content. Further, an examination of the upper and lower control limits on the X chart reveals that they are far outside the 5 percent and 15 percent requirements of the glue manufacturer's specification.

Application of the Charted Data

There are several possible courses of action suggested by this control chart. The assignable causes for the excess variation indicated by the points lying beyond the control limits may be searched for and identified and corrective action taken to bring the process into control. The operation of the drier may be altered slightly in the direction of slower average speed or higher average temperature to bring the X closer to 10 percent moisture content. While these two actions should improve the drying process and bring it into con-

---

[1]Rietz, R. C. 1947. Method for controlling the moisture content of wood going into furniture production. U. S. Forest Products Laboratory Report R 1685.

[2]Grand, E. L. 1946. Statistical quality control. McGraw-Hill, New York.

[3]Actually a valid determination that the process was out of control would require that the control limits be based upon more than 32 sub-groups, however, the principle is correct and as the system is extended to include more sub-groups confidence in the control limits can be increased. In addition the validity of the initial control limits based upon data which exhibits apparent lack of control may also be questioned. In practice new control limits would be calculated as additional data became available.

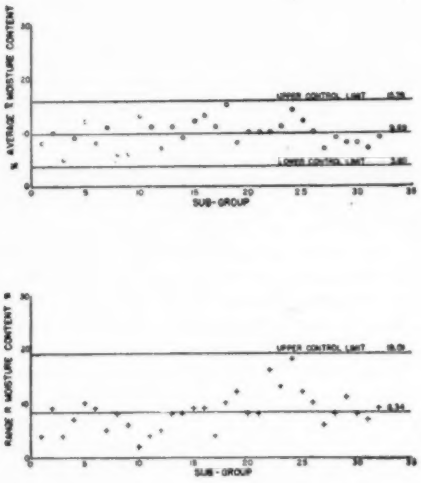


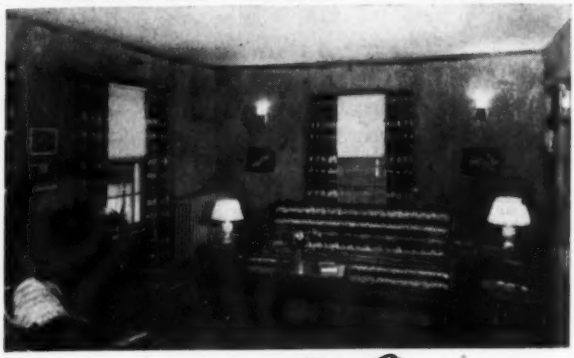
Fig. 2. X and R charts for red gum veneer 1/10-inch thick dried in commercial veneer drier.

trol they cannot reasonably be expected to bring about a change in the position of the control limits such that they would fall within the specification limits of 5 percent and 15 percent. Improvement in that direction would likely be obtained only by making some fundamental changes in the drying process which would make it more accurate. In the case in question it was felt necessary to attempt to improve the process in all three directions. That is to bring it into control, move the X nearer to 10 and improve the basic process to bring the control limits within the specification limits.

A study of the drying process revealed several major sources of variation. The drier operators were paying little attention to the established drying schedules. They were operating the drier from the dry end by checking the moisture content of the veneer with a moisture meter and then making an

KNOTTY PINE PLYWOOD WALL PANELING

For warmth of feeling and interesting grain, no plywood is more universally preferred and specified than Idaho Knotty Pine Plywood as used in this modern home. Ideal for rumpus or hobby room, extra attic quarters, offices or displays. Available in two thicknesses: 1/4"—48" x 84" and 48" x 96"; 3/4"—48" x 96".



Immediate Delivery from Chicago Warehouse

Write for Prices

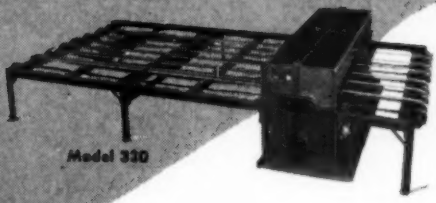
J. C. DEACON PLYWOOD Company

Plywood & Lumber

ESTABLISHED 1890
2627 S. DAMEN AVENUE
CHICAGO 8, ILLINOIS

Check YOUR LOSS FACTOR from LATHE thru CLIPPERS!

COE
VENEER
MACHINERY

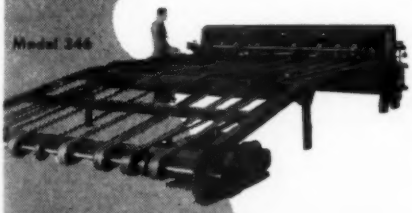

Model 330

Economy of clipping operations is proportionate to the efficency of the clipping and handling equipment used.

Make sure your veneer handling and clipping equipment is delivering the highest quality and the maximum quantity of usable veneer with a minimum loss factor from lathe through clippers.

Coe veneer clippers are available in a variety of types to meet all clipping needs.

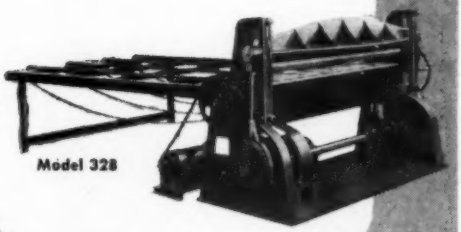
Consult us regarding your specific problems without obligation.


Model 346

Coe Model 330 Automatic Panel Clipper. Multiple Knife for sizing single sheets of veneer in motion. Position of cuts are selected by means of a timing chain moving at same speed as veneer.

Coe Model 346 Air-Operated High-Speed Single Knife Clipper for sizing single sheets of veneer in motion.

Coe Model 328 Motor Actuated Clipper for clipping multiple layers of veneer. High torque motors operate table and knife. A push button controls the feed table and a floor switch operates the knife.


Model 328

The COE MFG. *Company*

360 BANK STREET • PAINESVILLE, OHIO

Lathes • Clippers • Dryers • Knife Grinders

adjustment in the drier speed or temperature on the basis of this check. In addition, the steam pressure being maintained was quite variable and the drier operators were frequently trying to control drier temperature at a point above that which the available steam pressure could consistently provide. As a result there was no uniformity in drier operation and often changes were made so frequently that it was impossible to determine without tagging it how long a given piece of veneer was in the drier or on what temperature schedule it was dried. It was also observed that the thickness of the veneer varied considerably around the nominal 1/10-in. thickness thus resulting in a population of veneers with a wide range of drying rates based upon thickness. Heartwood was not being dried separately from the sapwood, although red gum heartwood and sapwood have quite different drying rates.

The following action was taken:

1. Drying schedules were revised by means of laboratory experiments and the drier operators were required to adhere to them.

2. An effort was directed at the maintenance of more uniform steam pressure and drier operators were instructed to set temperature controls at a point where the temperatures could be maintained at a constant.

3. Action was taken at the green end to improve the uniformity of veneer thickness.

4. Heartwood and sapwood were separated at the green end and dried to separate drying schedules.

Fig. 2 illustrates a portion of a control chart representing drying obtained after the actions listed above had been taken. It will be noted that the process exhibits statistical control and the X of 9.6 percent is very close to the target of 10 percent. However, the control limits

IT'S TIME TO CUT GLUING AND PLYWOOD COSTS!
With a VB HOT PRESS
THE WALL STREET JOU
What's New
Plywood Boom
Mills Are Deluged With Orders; Some Prices Up 35% From 1949 Low
Big Demand From Builders, Furniture and Trailer Firms and Householders
Gray Market Is Reviving
BY RICHARD H. STROUT
Staff Correspondent of THE WALL STREET JOURNAL
PORTLAND, Ore.—"Sold out!"
That sign hangs on the doors
Fully Hydraulic and Automatic in operation the "VB" Press saves on materials, floor space, labor and gluing time. It is constructed of an all-welded iron frame and comes completely equipped with motor, pumps and controls. The "VB" Press is producing quality plywood at lower costs for plants throughout the country. Available in sizes from 36x52" to 50x100" or to your specifications.
WRITE TODAY—Get full information and prices. also reprint of the story of the "Plywood Boom".
WRITE TODAY
BERTHELSEN ENGINEERING WORKS
P. O. Box 1423, Lockport Rd., Joliet, Ill.

AN OFFICE OF *Distinction*

These executive offices, of one of the world's great corporations, are paneled with rift cut oak veneer and lumber from our mill. This is but one of many such outstanding installations to which we point with pride.

Customers expect more from STEM —and they get it!

VENEER and LUMBER

Available at ALL Times

Flat Cut . . . Quartered . . . Rift . . . Half Round

- American Walnut
- Avodire
- Indiana Soft Textured White and Red Oak
- Hard Maple
- White Ash
- Yellow Poplar
- Cherry

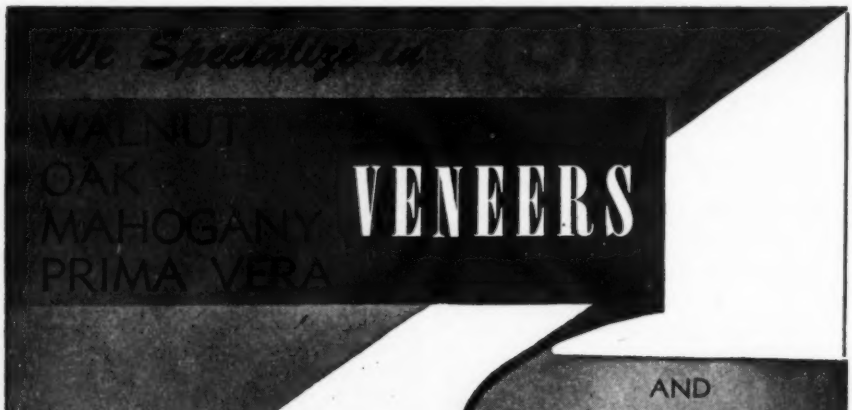
- Butternut
- Honduras and African Mahogany
- Prima Vera
- Limba
- Sapeli and many others
- Special logs for special places

We cut all of the above in standard thicknesses. All woods listed above are carried in our yard, in the log. We can give from three to five days service in production of special thicknesses and lengths—cut in veneer or lumber any way desired.

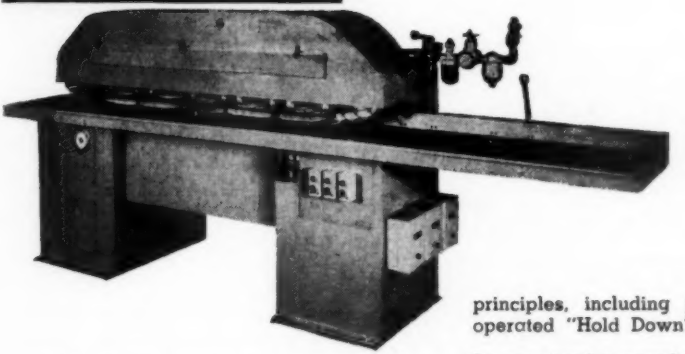
CHESTER B. STEM, INC.
438 GRANT LINE ROAD
NEW ALBANY, INDIANA

on the X chart of 15.78 percent and 3.60 percent are still somewhat outside the 5 percent to 15 percent specified by the glue manufacturer. If it were desired to again take action to improve the control limits another refinement in the drying process would be indicated. It was decided in this instance not to take further action immediately for several reasons. First, gluing rejections which had previously been high and for which non-uniform veneer drying was thought to be responsible, had virtually been eliminated. The time elapsed since the change in drying process was not felt to have been sufficient for the full benefits of this change to have accrued and have been reflected in the control chart. To have further refined the drying process would have meant making major changes in the drying equipment. The advantages to be gained by this additional refinement in drying operation could not justify the cost. In fact control charts resulting from data subsequently collected confirmed the wisdom of this decision when control limits fell within specification limits.

Fig. 3 illustrates a control chart obtained for a drying operation on ⅛-in. red gum veneer which was being used in the production of waterproof plywood bonded with a phenolformaldehyde resin adhesive. The veneer moisture content tolerances of the glue as specified by the manufacturer were between 4 percent and 8 percent. This process indicates statistical control. The glue joints being obtained were satisfactory and panel warpage was not excessive. It will be noted that the X was substantially below the specification midpoint of 6 percent and that the control limits about X exceeded those specified by the glue supplier. It was established however, that if the target moisture content was raised to 6 percent the spread between the control limits would be in-



WHY NOT TRY THE NEW CONTINUOUS FEED VENEER JOINTER



Our New Continuous Feed Veneer Jointer we believe is far superior to any continuous Feed Veneer Jointer heretofore made.

It has several revolutionary mechanical principles, including pneumatically operated "Hold Down" Shoes.

Its construction permits perfect work on extremely long stock, and it will joint successfully highly figured veneers such as burls, crotches, etc. The machine is equipped with a glue spreading attachment.

THE VENEER MACHINERY CO.

MAKERS OF THE DENNIS TAPING MACHINE

GRAND RAPIDS **MICHIGAN**

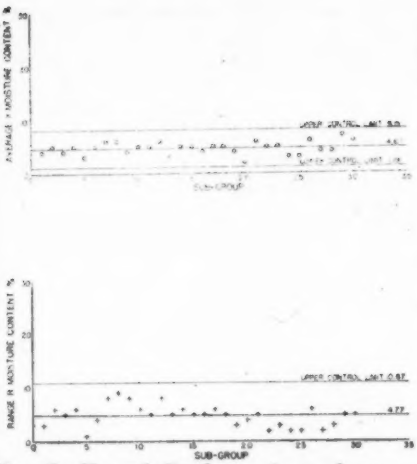


Fig. 3. X and R charts for red gum veneer ⅛-inch thick dried in commercial veneer drier.

creased and that gluing trouble would be experienced. To have maintained a suitable range around a target moisture content of 6 percent would have required the major changes in process noted in the previous paragraph. Inasmuch as the panels being produced were considered satisfactory, the additional costs involved in further refinement of the process could not be justified.

This illustrates a problem that frequently comes up when quality control charts are being used. The process may be brought into statistical control but the control limits may exceed the specification limits. When this happens a decision must be made to either refine the process to bring the control limits within the specification limits or to re-examine the specification limits with the object of determining whether they should be changed. In this instance, since the product being produced was satisfactory it was decided that the specification limits were too restrictive and should be modified.

These examples, were presented to

Curved Plywood
FOR YOUR PRODUCT

Write today for information on how Larson curved plywood can become a part of your products . . . how solid woods and costly substitutes can now be replaced. The results will be lower costs . . . greater strength . . . and added sales appeal for your products. Such has been the experience of other manufacturers who took the time to write. *Do so now . . . no obligation.*

LARSON *Plywood Co.*

DIAL 5081

SHEBOYGAN
WISCONSIN

MERRITT-SOLEM

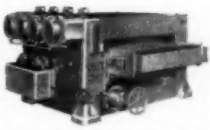
PROVIDES AN UNDIVIDED SOURCE OF SUPPLY OF MACHINERY FOR VENEER AND PLYWOOD MILLS

Whether it be a single machine or a complete veneer and plywood mill, Merritt-Solem supplies machinery and equipment with progressive, production-boosting features and advanced engineering designs.

Merritt-Solem, having earned an outstanding reputation for engineering and reliable service for over 75 years, offers the complete line: Veneer Lathes, Production Veneer Clippers, Plywood Presses, Steam Engine Drives, "DRYAD" Veneer Dryers, Reeling and Handling Equipment, Precision Veneer Jointers, Gluing Equipment, Knife Grinders, Drum Sanders, and all auxiliary equipment.

VENEER LATHES

Designed for production of veneers from full range of log sizes. High speed, precision cutting, for large volume production.

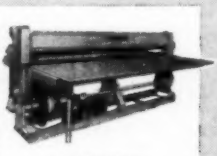


Solem Endless Bed Drum Sanders

High production quality finishing; available in 2, 3, and 4 drum models with 31" to 85" widths.

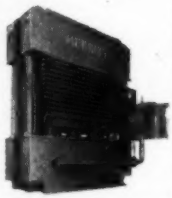
Traveling Head Veneer Jointers

Precision machine for jointing veneer stock up to 16 feet long.



Production Veneer Clippers

Wide variety of sizes and models available with automatic control features.



PLYWOOD PRESSES

Heavy duty, fast action hydraulic hot presses with 5 to 20 openings... Pressure up to 300 psi. Special hydraulic controls available.

Genuine

"MERRITT" REPLACEMENT PARTS

Rely upon GENUINE "MERRITT" replacement parts. These parts, made to latest job-proved specifications, are constructed from original drawings, jigs and patterns, and guarantee proper fit and long-life, dependable service.

MERRITT

MERRITT-SOLEM CORPORATION
LOCKPORT, NEW YORK
Established in 1851

Successors to: Merritt Mfg. Co., Merritt Eng. & Sales Co., Inc., Merritt-Monsanto Corp.

indicate the way in which the Shewhart quality control chart can be used in controlling an operation in the manufacture of hardwood plywood. It should be again emphasized that use of this type of chart does not guarantee quality control. It serves as a tool which the production supervisor can use to determine whether his operation is in control, and whether the control is being accomplished within acceptable limits. It can furnish him with a guide to corrective action if it is indicated. It may indicate that excessive variation is due to assignable causes which can be corrected by closer supervision of machine operators and foremen or by adjustment or repair of a machine. On the other hand it may indicate that the material being processed is itself so variable that the operation cannot be controlled within proper limits, or that the equipment used to perform the operation may not be basically accurate enough to satisfy specification requirements. When the latter two cases prove to be true no amount of closer supervision or disciplinary action applied to employees is likely to correct the difficulty. Either the specification limits must be changed to accomodate the production operation, the basic process must itself be improved or a 100 percent inspection must be set up to reject unsatisfactory material.

All of the preceding discussion has been based upon the assumption that inspection processes are themselves accurate. It is obvious that there is a normal variation present in the inspection process just as in the manufacturing process. This is provided for in the statistical techniques used. Mistakes made in the inspection, however, may result in charts which indicate faults in the production process when they are not present. And even more insidiously they may result in charts which indi-

BIRDS EYE •
DS EYE • BIRDS EYE • BIRDS EYE
USE...
Birds
Eye
MAPLE
A BLOND FIGURED WOOD FOR DECORATIVE PURPOSES.
Birds Eye Maple is one of America's finest cabinet woods. It is full rotary cut thus assuring good wide sheets and is available in substantial quantities from us at all times.
ESCANABA, MICHIGAN
BIRDS EYE
Veneer Company

DESTINATION UNKNOWN...

QUALITY GUARANTEED

Hundreds of trainloads of APMI plywood leave Associated mills in the course of a year. This miracle wood is used on various construction projects in the United States and throughout the world; but just exactly where, and under what conditions, we cannot be sure. What we do know, however, is that each panel is identified by a grademark and by the APMI trademark. This is, in effect, a double guarantee of quality and serves to identify APMI plywood whenever and wherever used.

ASSOCIATED PLYWOOD MILLS, INC.

GENERAL OFFICES: Eugene, Oregon

APMI MILLS:
Eugene and Willamina, Oregon

APMI SALES WAREHOUSES:
Eugene and Willamina, Oregon
San Francisco; Dallas; St. Louis

APMI SALES OFFICES:
Johnston Bldg, Charlotte, N. C.
31 State St., Boston, Massachusetts

cate a satisfactory process when in fact it does not exist. It should be axiomatic that before any action is taken on indications from a control chart, the inspection operation should itself be checked to insure that the fault does not lie there.

Controlling Other Operations

There are many operations in the production of hardwood plywood other than the drying operation to which the Shewhart control chart for average and range can be admirably adapted. A few examples are:

Controlling the thickness of veneer, control of dimensions in clipping, control of glue spread, control of glue joint quality, control of panel dimensions and others.

Not all of the possible analyses of the control chart have been discussed. In addition to the indication of lack of control resulting from the presence of points outside the control limits, lack of control may be suggested by a run of points within control limits but entirely on one side of the line of X or R. These are refinements in the use of the control charts which increase their use and which can be developed further after the system has been put into use and experience with it has been obtained.

One service which the properly used control chart can perform for the production supervisor is to tell him when a process or operation is in control and should be let alone. The observation was previously made that one of the assignable causes for lack of control in the drying operation was the tendency of the operator to change the speed and temperature setting on the drier frequently. This is a common fault of operators of other machines such as lathes, glue spreaders, sanders, saws, etc. Every production manager is familiar with the operator who can't let his machine

DON'T DISCARD USED ABRASIVES

– Reclaim them with Sand Re·nu Try It!

This amazing compound speedily removes all pitch and resinous substances which clog the abrasive grains of used drum covers, sanding belts, discs, rasps, and files, leaving a new, clean, cutting surface. It is also unequalled for removing pitch and resin from planer knives, planer rollers, saws and pressure rollers on drum sanders. SAND RE-NU has no effect on the glue bond of sandpaper or cloth and no corrosive action on machinery parts.

RENEWS CUTTING ACTION

because the abrasive does not wear out—it merely fills up. Abrasives treated with SAND RE-NU can be used again and again with a minimum of effort and expense. SAND RE-NU No. 6 (for woodwork) $2.50 in 1-gal. cans and $2.40 per gal. in 5-gal. cans, including wire brush free with original 5-gal. order. SAND RE-NU No. 9 (for metalwork) in 5-gal. cans only at $2.90 per gal. All prices F.O.B. Minneapolis, Minn. Remit for trial can today—or order C.O.D.

NON-TOXIC • NON-COMBUSTIBLE • ECONOMICAL

MASSIE MANUFACTURING CO.

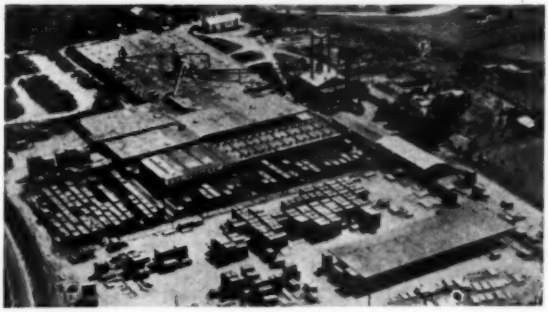
P. O. Box 28-W, Lake St. Station

MINNEAPOLIS 8, MINNESOTA

GET OUR QUOTATIONS ON SOLID OR PLYWOOD FURNITURE DIMENSION, PARTIALLY OR COMPLETELY MACHINED

ALSO ANY WOOD SPECIALTY ITEMS

From start to finish, everything is subject to quality control.



Appalachian hardwoods or genuine mahogany, carefully air dried, kiln tempered, cut on precision jigs, checked by metal templates, polish sanded ready for finishing.

A reputation backed by 25 years' experience, 300 men, ½ million dollars in machines, 1,600,000 feet cutting capacity per month, 267,000 square foot plant area.

We gladly work shoulder to shoulder with our customers. Inquiries invited.

Write for free 32 page booklet — "Quality in Furniture Dimension"

MORGAN

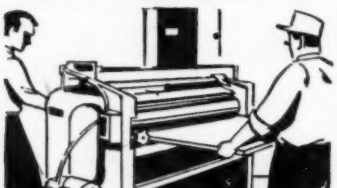
MANUFACTURING COMPANY

BOX 458, BLACK MOUNTAIN, N. C.

alone. He has to change its setup constantly. It is rare when a properly built and maintained machine being used for the purpose for which it was designed has to have constant adjustment. Most frequently such continuous tinkering is actually contributing to greater variation in quality rather than less. The control chart will indicate when a process is in control and can be used by supervisors to eliminate unnecessary manipulation of machine setups.

Another type of quality control chart which has some application to plywood manufacture is the control chart for attributes. An example of such a chart is shown in Fig. 4. This type of chart may be used to control processes where the inspection is not for a measurement but for the purpose of putting the item inspected in one of two classes—acceptable and rejectable. These charts are frequently called the chart for fraction defective. The chart illustrated in Fig. 4 is one applicable to the control of thickness of finished plywood panels. Because of the nature of the assembly in which the plywood was being used, control of the thickness was extremely important. The plywood was required to conform to a thickness tolerance of plus or minus a sixty-fourth of an inch. Since the panel was of the overlay type there was no opportunity to control the thickness in a sanding operation. It had to be manufactured to the correct thickness out of the press. Panels were checked for thickness with a "go and no go" gauge or a dial-snap gauge and recorded as being either acceptable or rejectable.

In preparing the chart the 20 subgroups were used as a basis for establishing the original control limits. It will be noted that the control limits for this chart are irregular in contrast with the straight lines shown in the X and R charts. This is because the sub-groups



Spreads Equally Well By Hand or Mechanical Spreader

CELLUMENT...

The Amazing Urea-Resin Adhesive for HOT or COLD GLUING

All-Purpose CELLUMENT works equally well for hot press (electronic included) and cold bonding on a wide variety of materials.*

CELLUMENT comes as a DRY powder with incorporated catalyst ready to dissolve in water. CELLUMENT dissolves *instantly* . . . sets quickly . . . spreads fast an easy by mechanical spreader or hand. Extenders may be added. Hot press bonds with unextended CELLUMENT are strong, fungus and water resistant.

* Excellent for gluing plastic to wood. Buckstaff Co. recommends CELLUMENT for gluing their Resylite to Plywood.

CELLUMENT is another MONITE product for industry. Behind it stand 35 years research and development.

Write Dept WD TODAY
for free test sample for your plant

TRADE MARK MONITE WATERPROOF GLUE

MONITE WATERPROOF GLUE COMPANY

1628 NORTH 2ND, MINNEAPOLIS 11, MINNESOTA

TAP THE FOREST TO FIT YOUR NEEDS THROUGH *GEORGIA—PACIFIC'S* "new dimension"

Georgia-Pacific recently announced a "new dimension" in plywood, lumber and door buying . . . efficient, coordinated buying from a single source. But, the "new dimension," based on a nation-wide network of plywood and lumber mills, warehouses and offices, is more than a modern, cost-saving way to meet all your needs . . . it also represents improved products to help you make better use of wood.

Here are some Georgia-Pacific product examples:

GPX—the plastic-faced plywood—so hard, so smooth, so durable it's turning in an amazing cost-cutting record of performance in many industrial and construction applications.

DOUGLAS FIR PLYWOOD—all types, all sizes, produced to meet top-quality G-P standards by controlled milling methods in the Northwest's largest mills.

HARDWOOD PLYWOOD—from Georgia-Pacific's modern Savannah plant—G-P Crownply, the decorative hardwood plywood . . . and G-P Plysheet, the specially processed, virtually warp-free plywood sheathing and utility panel.

GIANT SCARFED PANELS—12', 14', 16', or up to 10' x 72' panels for time-saving marine and industrial use.

HARDWOOD LUMBER—Southern and Appalachian hardwoods of all species.

SOFTWOOD LUMBER—Long Leaf and Short Leaf Southern Pine and Western Lumber of all types, processed for maximum strength and uniformity.

DOORS—Panel and Flush doors of all styles, made by precision methods for strength, beauty and economy.

Send for your copy of the 20-page booklet, "A New Dimension" and the Problem Analysis Data Form that will help you re-examine your plywood and lumber needs, and buying methods. Write Georgia-Pacific Plywood & Lumber Co., 1238 Southern Finance Building, Augusta, Georgia.

GP — *GEORGIA—PACIFIC*
PLYWOOD & LUMBER CO.

Georgia-Pacific representatives—trained men with wood engineering "know how"—are available in cities where offices or warehouses are listed below. It will pay you to talk with them.

DISTRICT OFFICES: Augusta, Chicago, Olympia, Portland, Newark.

WHOLESALE DISTRIBUTION WAREHOUSES:
Boston, Chicago, Columbia, Newark, Philadelphia, Raleigh, Richmond, Savannah.

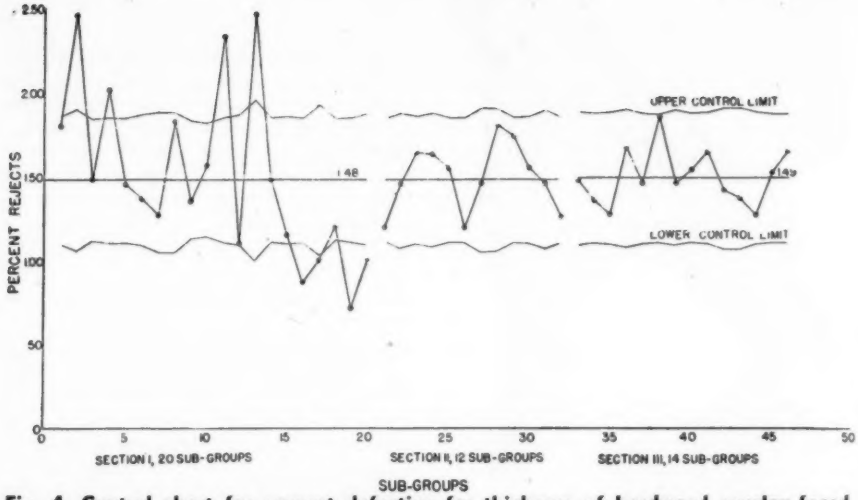


Fig. 4. Control chart for percent defective for thickness of hardwood overlay-faced plywood.

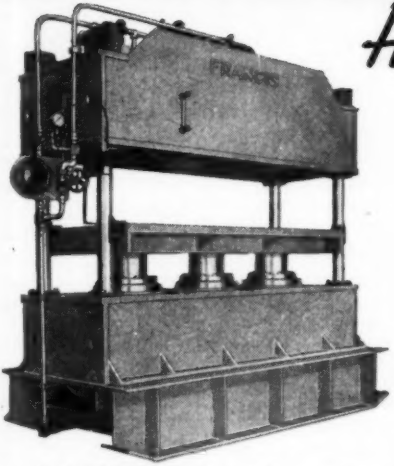
represent a day's production and accordingly the sub-group sizes are variable. If the sub-group size were constant, the control limits would be straight lines. If it is desirable for purposes of simplicity to have straight control limit lines even when it is necessary for inspection reasons to have variable sized sub-groups there are acceptable techniques[2] for calculating approximate straight line control limits although such limits are not as precise as are those determined as in this example. The points falling outside the upper control limit indicate the possibility of assignable causes for panels which were too thick or too thin. Those falling outside the lower control limit suggest improper inspection techniques. The out of control points above the upper limit could, of course, also be due to inspection faults. The action indicated by this chart is to complete examination of the process for causes of excess variation and a study of inspection procedures for faulty equipment and techniques. In this instance it was found that two causes for excessive variation in thickness were too much variation in veneer thickness and the

ALL
NORTHERN
HARDWOODS
LUMBER
VENEERS
PLYWOODS
Phone, Wire or Write
NORTHERN
HARDWOOD
VENEERS, Inc.
Butternut, Wisconsin

Francis

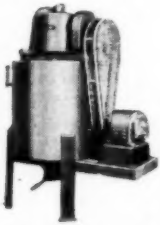
EST. 1880.

DEPENDABLE GLUE ROOM EQUIPMENT

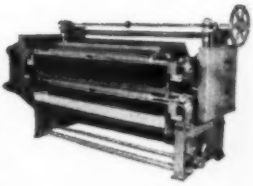


Hydraulic COLD PLATE Presses

Francis presses are available for all types of laminated work in standard sizes up to 5'x12' platen size. Sturdy, heavy duty construction throughout, custom built to your specifications ... operation is simple and economical ... workmanship of highest quality.



GLUE MIXERS—Mixers for every purpose and all types of glues ... double agitation plus sweep paddle to prevent settling of glue fillers. Available in sizes up to 200 gallons, with or without stands. Can be used for mixing paint, rubber cement, etc.



GLUE SPREADERS—Pay for your glue through savings with Francis Double Roll Glue Spreaders designed for proper application. Single top and bottom coating machines, laboratory and experimental models. Simple and accurate adjustments ... easily and quickly cleaned ... in sizes from 12" to 108" in length.

● *For Illustrated Literature and Details write direct to* **CHAS. E. FRANCIS CO., Huntington, Indiana, U.S.A.**

GENERAL PURPOSE HYDRAULIC PRESS | **ELECTRIC GLUE POTS** | **CLAMP RODS "I" BEAMS**

EXCLUSIVE REPRESENTATIVE PLYCOR COMPANY
DIVISION OF EARLE HART WOODWORKING MACHINE COMPANY
565 W. WASHINGTON BLVD., CHICAGO 6, ILL.

AMERICAN STREAMLINED COMB GRAINED VENEER

Mfgd. under Process Patent No. 2,281,407, and Lathe Apparatus Patent No. 2,397,110

We are now in production in our new plant, using most modern methods, equipment, and techniques to manufacture door stock in all thicknesses.

HIGHEST QUALITY
OAK, — MAPLE, — POPLAR,
SILVER ELM & WALNUT
SLICED AND ROTARY CUT
VENEER
(In Single Ply Only)

HILL BROTHERS VENEER COMPANY, INC.
EDINBURG, INDIANA

use of the same pressure in hot pressing woods of different densities. Examination of the inspection processes revealed careless use of gauges, and a worn "go and no go" gauge which was allowing excessively thick panels to pass.

The portion of the chart for the second group of 12 sub-groups shows the process in control after corrective action was taken. The same control limits are used for evaluating the process. The final fourteen sub-groups show a continuation of the process in control. New control limits were calculated from data collected while the process was in control but they are not too different from the original limits. Generally, this type of control chart has fewer applications to plywood operations than does the chart for X and R.

No attempt has been made to cover in detail the techniques of preparing quality control charts. There are ample references available covering these methods and the statistical theory upon which they are based. Methods of utilizing the charts for analysis of a few plywood production operations have been illustrated. There are many additional adaptations that can be made. In addition to furnishing the production supervisor with a measure of his success in controlling quality and with clues to the source of extraneous variation in quality when it exists, the proper use of statistical quality control methods can be expected to contribute to lower costs through reduction in waste and down graded panels. With emphasis by manufacturers on improvement in the quality of hardwood plywood, statistical quality control techniques should prove increasingly useful tools.

The End

Ambition means working yourself to death in order to live better.—**Banking**

Controlled Humidification

puts barrel-hoop tightener out of a job!

WINTER heating dries air . . . dry air shrinks barrel staves . . . barrels loosen . . . man keeps busy tightening hoops.

Armstrong Humidifier adds moisture . . . staves don't shrink . . . man not needed for this job. This is not a gag—just a means of focussing your attention on the importance and value of humidification in *any* woodworking plant.

Armstrong Steam Humidifiers automatically add moisture to the air to maintain any relative humidity you require. Cost: a few pennies per day. They are guaranteed to SATISFY YOU or get your money back. Write for full details today.

ARMSTRONG MACHINE WORKS
863 Maple Street, Three Rivers, Michigan

HOW TO CONTROL QUALITY AND REDUCE COSTS

SEND FOR THIS BULLETIN

Send for 12-page bulletin 1772 giving complete information and prices on Armstrong Steam Humidifiers.

ARMSTRONG *Steam* HUMIDIFIERS

BUILT BY THE MAKERS OF ARMSTRONG STEAM TRAPS

WD New Literature Section..

TRAINING BOOKLETS

Six new training booklets for foremen and supervisors, called the "Psychology of Safety in Supervision," have just been issued by the National Safety Council. The series is written by Dr. J. L. Rosenstein, industrial psychologist and professor in the department of management, Loyola University, Chicago, Ill.

"You Can't Change Human Nature" is the title of the first booklet in the series. This discusses common peculiarities of human nature and explains why no one is perfect.

"What Is Your U Q?" is the second booklet, explaining the meaning and importance of a supervisor's understanding quotient, or his ability to understand the attitudes and actions of his workers.

"Teaching Safety on the Job," the third in the series, describes accidents that happened because workers lacked sufficient knowledge or skill, and discusses supervisory training methods required to prevent such accidents.

"People Act Alike," the fourth booklet, explains in what way normal people are alike and in what manner they differ from one another. It discusses basic human wants and explains how supervisors can satisfy these wants.

"Safety Takes Teamwork," the fifth of the series, suggests methods for supervisors to make safety interesting and important to workers.

"You Are Human Too," the last of the series, gives supervisors a hypothetical measuring stick for determining their own strong points and weaknesses, and shows them how to evaluate their habits, emotional biases and abilities as supervisors.

Complete sets of the six booklets are offered by the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

FIRE PREVENTION

An educational booklet on fire, suitable for distribution to fire protection personnel, has been published by Ansul Chemical Co. "Fundamentals of Fire Extinguishment" is a 4-page illustrated discussion of what fire is, classes of fire and proper methods of extinguishment.

Originally introduced as an aid in training salesmen, "Fundamentals of Fire Extinguishment" has been requested and used by fire departments, industrial fire brigades, insurance companies, and other fire protection groups.

Copies are available from Ansul Chemical Co., Marinette, Wis.

COMPRESSOR BULLETIN

Paramount Compressor Corp., Chicago, has issued a new brochure describing and illustrating their compressors.

The brochure also illustrates various applications for the compressor and gives complete specifications. A copy may be obtained by writing to Paramount Compressor Corp., Dept. WD, 512 North Sangamon St., Chicago 22, Illinois.

WE HAVE *Failed* AFTER 75 YEARS
TO SOLVE ALL NAILING PROBLEMS

But THOUSANDS OF PROBLEMS PREVIOUSLY CONSIDERED IMPOSSIBLE HAVE BEEN SOLVED BY . . . . . .

DOIG NO. 45-20-16

NEW FEATURES

A. Wheel on left allows operator to adjust back gage from operating position.

B. Solenoid trip permits operator to trip machine at any position desired.

DOIG AUTOMATIC NAILERS

STANDARD DOIG FEATURES

1. Anti-friction bearings
2. Three separate motorized drives
3. Nail feeder to handle nails from 1 to 3 inches without additional parts required.
4. Nail feeders to give 12 separate nailing combinations.

★
★

WRITE TODAY . . . we invite your requests for full details

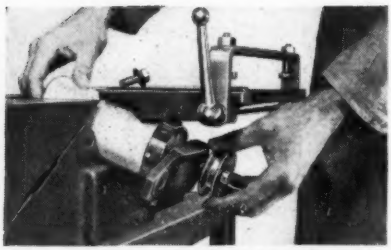
WILLIAM S. DOIG Inc.
DEPT. 312 — 55 FRANKLIN ST., BROOKLYN 22, N.Y.

Faster Finishing at Less Cost!

Atlas

6" JOINTER
WITH 42" TABLE

The only 6" jointer that features simultaneous positioning of cutter blades. Whole cutter head removes for sharpening blades without disturbing setting. 42" precision-ground table, 32" x 4½" two-way tilting fence. Cuts rabbets to ½", has *rabbeting width scale.* Stationary rear table widens to 12" for handling wide boards. Sealed ball bearings. See it now!



Remove cutter head and sharpen blades without disturbing setting!

Exclusive fence mount assures fast set up — greater rigidity and accuracy.

WRITE FOR FREE CATALOG

ATLAS PRESS CO.
1111 No. Pitcher St.
Kalamazoo • Michigan

MATCHED PRECISION TOOLS FOR WOODWORKING AND METALWORKING

Safety in Sawmilling

SUMMARY OF A ROUND TABLE DISCUSSION

SAFETY IN SMALL sawmills was discussed during the 1949 National Safety Congress at the request of several delegates. We believe the material we are presenting here will be of value to many of our readers.

Following the request for such a discussion, here are points given to the delegates as a basic safeguard for sawmills, by the T. H. Mastin Company, Kansas City, Mo.

1. Standard guard railing (42" in height, 2 x 4 posts not more than eight feet apart, 2 x 4 top rail, and 1 x 4 intermediate rail) should be erected wherever workmen may come in contact with the following:
   a—Main motor or engine drive pulley
   b—Main drive belt
   c—Edger drive belt
   d—Edger feed pulleys
   e—Edger and trimmer drive pulleys.
2. Heavy posts, well braced or sunk in the ground, should be installed behind main drive pulley and mandrel pulleys to retain belts in case of breakage.
3. All vertical belts (e.g. swing saw drive belts) should be enclosed to a height of seven feet.
4. Swing saw should be equipped with limit-of-motion chain, and counterweights should be secured by slack chain or cable to roof. Top portion of saw should be guarded.
5. Mesh screen should be installed to protect sawyer from flying chips and sawdust.
6. All running shaft ends should be cut off flush with pulley hub or be enclosed.
7. Exposed keys, keyways, collars and couplings should be covered with a s m o o t h , cylindrical sheet metal sleeve.
8. All setscrews should be set flush with or countersunk beneath the surface of the part in which they are inserted.
9. Mill floors should be firm and level. If mill is set on ground, earth should be level and smooth. If planking is used, it should be firm, level and free from holes.
10. The outstanding cause of saw accidents is improperly sharpened and set saws. In the interest of efficient production as well as accident prevention, saws should be checked daily and repaired immediately if not up to standard.

Accidents and Prevention

DELEGATE: On your point 5, do you have much trouble? My experience has been that 60 per cent of the accidents are eye injuries.

CHARLES ZESKY (Chief Engineer, T. H. Mastin & Co., Kansas City, Mo.):

Well, the mesh screen we recommend helps. We tried plastic shields but we gave them up.

DELEGATE A: We've replaced mesh with armor plate glass.

DELEGATE B: How far is your sawyer from the saw?

DELEGATE A: Twenty feet.

DELEGATE B: Well, we're much closer. The glass screen didn't work. It got too dirty.

DELEGATE: Does anybody have any trouble with the tail sawyer on a small job as a result of the failure to use a protective apron? As I see it, these are two musts in personal protection. On these jobs, the first is eye protection, the second is the leather apron for the tail sawyer.

DELEGATE: We have a big problem with chips flying. They're not serious injuries but they're nuisance injuries. What can we do about it?

Our men must wear goggles. We put in baffles on the hog made of heavy metal and hinged. They give way as the material passes, but swings back by gravity.

DELEGATE: Has anyone used plexiglass screens or plastic screens, between the sawyer and the bandsaw?

DELEGATE: One of our plants uses an armor plate glass.

CHAIRMAN: Do you have any problem with reflection?

DELEGATE: No problem when you get your lighting fixed up right. You have to do a good industrial lighting job to eliminate reflection.

DELEGATE: We have found that pitch from the wood dirties the shield and is hard to remove.

CHAIRMAN: We used glass in one place but the sawyer's pit is close to the saw, and the water and resin smeared the shield and was very hard to remove.

DELEGATE: We used air-powered windshield wipers, just like an oversized version of what you've got on your automobile. We only needed plain water to wash it off, as long as we kept the windshield wiper going, but if you once let that resin set, it takes gasoline or turpentine and a lot of hard work to remove it. The windshield wipers worked well for us.

DELEGATE: We had a near accident the other day when the front dog let go and a log went into the sawyer's pit.

CHAIRMAN: We use a railroad rail mounted on the floor and the ceiling. It stands between the sawyer and the saw. I would like to ask how you prevent carriage wrecks caused by mechanical failure on rigs powered by steam.

DELEGATE: We have maintenance men check daily, and there is a quick check at noon. This is the responsibility of the millwrights.

DELEGATE: In our place we have two inspections a day, with the sawyer being responsible, and we check all the valves internally once a week. We use a check list which has to be signed by the sawyer and turned into the superintendent stating that the various points on the check list have been inspected and found O. K.

E. R. SCHINDLER (Manager Mechanical Efficiency Dept., Southern Pine Ass'n., New Orleans, La.): Has anyone had an experience with stray metal in saw logs? What do you do about it?

DELEGATE: Everybody has had that experience. I think we ought never to take logs that have stood near a corner of a field or near any fence. They are almost certain to have some metal in them. We ought to leave them in the ground.

DELEGATE: In many places in this country where there have been rifle and artillery ranges, there's an awful lot of metal scattered around. We've been looking around for a mine detector to use. One company I know claims they saved $8,000 to $10,000 per year by use of them.

New Driving Power Behind

AMERICAN PHILLIPS SCREWS!

New Campaign Goes Direct to Retail Buyers of Phillips-fastened products

Manufacturers of all types of products know the production-savings and sales-promotion power of American Phillips Screws. And now 14,000,000 prospective *buyers of those products* are being introduced, through the Saturday Evening Post, to the dependable "buy sign" of the Phillips Crossed Recess (the recess with the wide center opening for easy driving). They are being told that:

is a *Known Quality*... a mark of *Top Quality* throughout the product

This campaign puts greater sales drive than ever behind American Phillips Screws ... another good reason why it's good business to Phillips-fasten *your* products.

4-WINGED DRIVER CAN'T SLIP OUT OF PHILLIPS TAPERED RECESS

THE SATURDAY EVENING POST

AMERICAN SCREW COMPANY

Plants at:
WILLIMANTIC, CONN. • NORRISTOWN, PA.
Warehouses at:
389 E. ILLINOIS ST., CHICAGO 11 • 302 STEPHENSON BLDG., DETROIT 2

Pre-Employment Examinations

One of the delegates asked what the group thought about the value of pre-employment examinations for sawmill workers. Here are some of the points mentioned.

LOUIS D. GLAZER (Insurance Manager, Dierks Lumber & Coal Co., Kansas City, Mo.): We have used pre-employment examinations for years, wherever we could get a local doctor. In some places we can't and we have to do without. The great advantage of the pre-employment examination is the protection it offers against our being charged for pre-existing physical defects. I think it's thoroughly desirable.

DELEGATE: How much do you have to pay for an examination?

MR. GLAZER: When we have a resident doctor there is no charge. It's tied up with the hospital association.

DELEGATE: Do you take any waivers for handicaps—for instance, G. I.'s with a defect?

MR. GLAZER: If a man is able to do work, even if he has a defect, the superintendent may put him through.

DELEGATE: In our company, the personnel department decides on the basis of the examination whether or not a man should be hired. We think that there are many defects which don't matter at all in hiring a man.

DELEGATE: Job descriptions are a big help. With the descriptions and examinations we can fit a man to a job.

Training for the Job

CHAIRMAN: I've had an inquiry on methods of training workers. Can anyone shed any light on this question?

DELEGATE: We produce about 7,000 feet of lumber an hour. That means we're neither a very big nor a very small outfit. We've segregated our mill into various departments, and we start a man off in the very simplest job. For instance, in one place it might be that of a tail sawyer. With the use of spare

MORE SPEED MORE SUPPORT

MORE WORK

IMMEDIATE DELIVERY!

PADDOCK
BALL-BEARING
BAND SAW GUIDES

You'll find PADDOCK BALL-BEARING BAND SAW GUIDES more than pay for themselves in: (1) Reducing blade breakage; (2) Cutting more materials; (3) Protecting workmen; (4) Speeding up production.

Ball-bearing wheels, turning with blade, give strong friction-free support to saw blade. Wheels are interchangeable for years long wear. They're of strong steel construction.

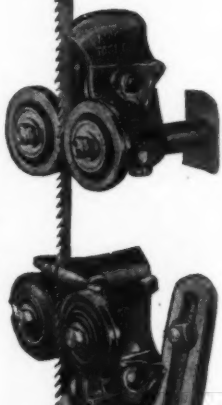
Write today for Free Circulars and Prices

PADDOCK TOOL COMPANY

1418 Walnut Street Kansas City, Mo.

Guide Makers Since 1920

Paddock
BALL-BEARING
BAND SAW GUIDES



No. 232

EKSTROM CARLSON

HIGH SPEED ROUTERS

ECCO

With over 23 years of specialized experience in the design and manufacture of High Speed Routers, we are in a particularly favorable position to advise you expertly on the choice of a router to fit your needs. ECCo High Speed Routers feature hairline accuracy, smooth finish, efficient operation, exceptional durability, adaptability to a wide range of work, and high quality construction. Be sure to check the possibilities in the full line of ECCo Routers.

No. 434

CONDENSED SPECIFICATIONS		
	No. 232	No. 434
Motors, 3 ph, 220, 440, or 550 volt	3 hp 5 hp	3 hp 5 hp 7½ hp
Spindle Speeds	10,000 rpm 20,000 rpm	10,000 rpm 20,000 rpm
Work Table Size	22" x 32"	24" x 36"
Table Clearance	20"	28"
Height, Floor to Table	33" min. 40" max.	30" min. 40" max.
Actuated Travel	4" on table	4" on spindle
Collet Capacity	½"	½"

WRITE FOR LITERATURE

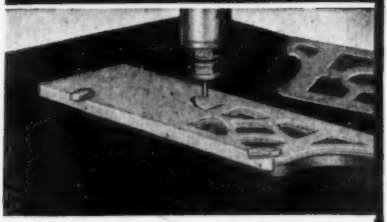
Learn all about the interesting details of ECCo High Speed Routers. Write today for Bulletin R100 giving full information.

EKSTROM, CARLSON & CO.

1411 RAILROAD AVENUE • ROCKFORD, ILLINOIS

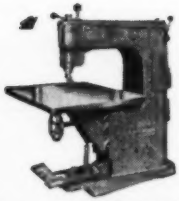
MOULDERS • SANDERS • ROUTERS • SHAPERS • CARVERS • PANEL SIZERS • GROOVERS

Onsrud Routers



select the router that fits your production . . . to give you quality high speed work at low cost

When your router department doesn't make enough profit for you, the trouble is often one of several things . . . the router you use may be too small or too large or not adaptable to the class of work you do. Onsrud builds routers of varying sizes, and offers a selection of many construction features to make these machines more productive for your particular use. Let us give you the facts . . . write for Bulletin.



W-244 . . . a single speed 20,000RPM or two speed, 10,000 and 20,000 RPM heavy duty router. 24" throat capacity. Also built as the W-304 with 30" throat.

W-180 . . . light and medium duty router, single speed 20,000 RPM or two speed 10,000 and 20,000 RPM. A quality-built, low priced router for fast work.

W-205 Portable Router . . . 1/4 HP, 50,000RPM. Onsrud Portable Routers are built in a range of sizes for every kind of portable routing work and include the W-206, W-207, W-208 and the E1R1. Write for Portable Router Bulletin.

W-113-E . . . slide or swivel head router. Two speed high cycle electric motor drive . . . 21,600 and 14,400RPM. A heavy duty router for those who prefer direct motor drive.

ONSRUD MACHINE WORKS, INC.

3947 PALMER ST. • CHICAGO 47, ILL.

Sales Offices in all Principal Cities

ALSO SPECIAL ROUTERS BUILT TO YOUR SPECIFICATIONS FOR MULTIPLE-REPEAT PRODUCTION ROUTING OPERATIONS

men, we can move this man around as he learns one job, up to a little tougher job—moving through the crew. Each department has its own system of progression. We take advantage of those Monday morning blues when we do some of this rotating.

CHAIRMAN: We do the same. Men learn various jobs by doing them.

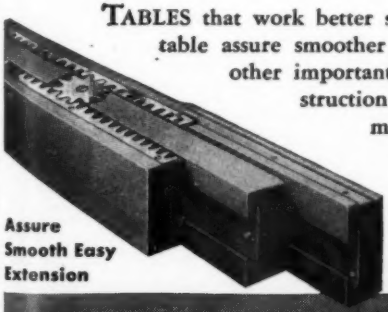
DELEGATE: When a man takes over as a setter, the regular setter can check him out on each operation. Some of the old men of course, are not good instructors, so we shift the younger fellows to the men who are better.

The questions and answers given here come from men who are seeing safety—or the lack of it—at work in their operations. We hope you will be able to use some of their ideas in your own plant.

The End.

EXTENSION TABLE ENGINEERING

TABLES that work better sell better. Wabash Slides engineered to the table assure smoother operation, easier upfitting and offer many other important advantages. You can have your table construction styled by specialists at no extra cost. We manufacture all types of Slides, Folding Leaf Equipment, and Top Locks.



Assure Smooth Easy Extension

Write **Today for Free Engineering Consultation Blank**

B. WALTER & COMPANY, INC., WABASH, INDIANA

Walter of Wabash

CUT COSTS, make stronger assemblies with QUALITY CONTROLLED "ROCKFORD-PHILLIPS" or SLOTTED HEAD WOOD SCREWS.
Stock of all sizes and head styles ready for shipment.
FOR COMPLETE INFORMATION AND PRICE LISTS WRITE FOR OUR NEW WOOD SCREW Catalogs No. 202 and No. 106.
We fabricate a complete line of STANDARD • AUTOMOTIVE • AIRCRAFT & SPECIAL Threaded Fasteners.
"Quality Controlled" Products
"ROCKFORD" Screw Products Co.
2501 S. Ninth Street
ROCKFORD, ILLINOIS
Phone: 4-9441 or Wire: RK 86

PLANT SAFETY AWARDS

The employees of the **G. M. Diehl Machine Works, Inc.**, Wabash, Indiana, recently were awarded a scroll for working continuously for 18 months, 260,000 man-hours, without a lost-time accident. A framed scroll was presented to the employees at a factory meeting.

Three departments of the **Flintkote Company** were feted recently for having scored 777,267 man-hours without a lost-time accident. At a department supervisors' safety meeting three supervisors received the certificate award on behalf of their departmental personnel. To qualify for such an award, at least 250,000 man-hours must be logged for 12 consecutive months and without a single lost-time accident.

PAINT PROTECTION

A new flyweight respirator hood—the No. 75—designed for protection against dust and paint spray operations

has been developed by American Optical Company, Southbridge, Mass.

Light and comfortable, the hood incorporates AO's R2000 respirator which protects against a variety of dusts or gases by means of seven specific cartridges. Hood design assures full and free movements of the head and neck.

Manufactured of white nylon, olive green twill or white muslin, the hood provides complete protection for eyes, head, neck, shoulders and respiratory organs. Two drawstrings tying under the wearers' arms assure snug fit.

Other features include a 10" window of clear cellulose acetate which gives completely unobstructed frontal vision. Though not designed for impact resistance, the window is thick enough to provide full protection against the hazards of dust and paint spraying for which it is intended.

American Optical Co., Dept. WD, Southbridge, Mass.

SAFETY IS NOT AN ACCIDENT

The biggest news in industrial safety today is that accident rates are coming down in the lumber industry, from trees to boards. Not in every company in the business, but in enough to show that it can be done and how it can be done. Companies still lagging will soon realize that they must stir themselves

to activity or fall hopelessly behind the procession.

Here is one example, Weyerhaeuser has reduced its frequency rate in the two years from 1947 to 1949 by 31 per cent in sawmills and 35 per cent in logging! At one logging operation of the company the reduction was 57 per cent, and the White River sawmill hung up a record frequency of 12.21 for 1949.

And that's no accident. Any safety man watching what was going on could have predicted the results. The published policy of the company, "to maintain safe and healthful working conditions for employees; to continue the highest safety educational standards; to promote a genuine and lasting interest in safety among employees; and to comply with safety laws and codes," has been made everyday practice throughout the company.

—Wood Products Safety

PROTECTIVE MASKS

G-S protective masks consist of an aluminum shield, which is held in position by an adjustable elastic head band, and replaceable laminated filters of extra thickness. They protect throat, nose and bronchial tubes from larger particles of non-toxic dusts that irritate these membranes.

Important from the standpoint of the wearer is the fact that these masks weigh less than ½ oz. They are cool and comfortable.

General Scientific Equipment Co., Dept. WD, 1015 Packard Bldg., Philadelphia 2, Pa.

JEEP FIRE TRUCK

A low cost jeep fire truck with a big fire-killing punch is now on the market. This unit, developed by Ansul Chemical Co., carries 340 lb. of dry chemical. It is claimed to be capable of extinguishing large area inflammable liquid, gas and electrical fires.

Named the Ansul model 340-J, the jeep fire truck will be available to manufacturing plants and other installations where fire hazards are dispersed over wide areas.

A 300 lb. tank of dry chemical is provided for combating large fires. On the model 340-J2, two 50 ft. hose lines are attached to the dry chemical tank.

Ansul Chemical Co., Dept. WD, Marinette, Wis.

Pheoll TAPPING SCREWS
Cut Assembly Costs
5 Different Ways

1 End tapping time and tap cost in sheet metal.

2 Eliminate need for tapped inserts in plastics.

3 Stop thread stripping and part damage.

4 Simplify assembly in tight places.

5 Speed production with unskilled help.

● Pheoll tapping screws—Type A Gimlet Point; Type B Blunt Point; and Type C Taper Point—save assembly time. These case-hardened steel screws are available in round, flat, oval, pan, and truss head types, either slotted or with Phillips recess, or they may be furnished with hexagon type heads. Finishes include bright steel, plated nickel, cadmium, brass, zinc or Parkerized; with chromium, bronze, etc., as special finishes. Types A and B tapping screws are carried in stock; Type C screws are made to order. Ask for further details.

Other Pheoll Products
Machine Screws, Machine Bolts
Special Screws and Bolts
Cap Screws, Machine Screw Nuts
Wood Screws Thumb Screws
Brass Washers

Pheoll MANUFACTURING COMPANY • 5700 Roosevelt Road Chicago 50, Illinois
SCREWS • BOLTS • NUTS *Industrial Fasteners and Holding Devices*

Forest Products Research Society

The Forest Products Research Society has officially announced plans for holding its 1951 Annual Meeting and International Industry Show at Convention Hall in Philadelphia the week of May 7 through 11.

According to Mr. W. Burdette Wilkins, Consulting Engineer to the Wood Industries and General Chairman of the 1951 Meeting, both the technical sessions and exhibits will be held in Convention Hall. Further, that the Forest Products Industry Show will be international in scope with exhibiting firms represented from Canada, England, Europe and it is hoped other foreign countries.

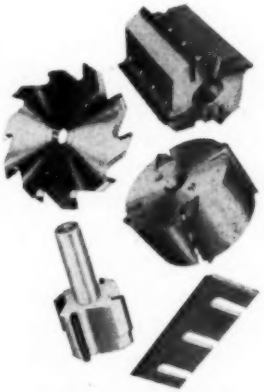
In exhibiting a wide range of products, equipment and chemicals from logging to furniture-making, there will be 142,000 sq. ft. of available space at Convention Hall. Three classes of exhibit areas are being planned: (1) 22,000 sq. ft. of "quiet" area for service exhibits,

"... OVER 800 HOURS OF EXCELLENT SERVICE"

"... ABOUT 30 TIMES THE NUMBER OF PIECES BETWEEN SHARPENINGS ..."

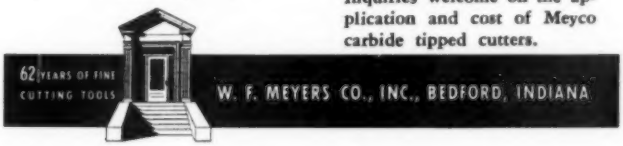
ENTHUSIASM....

Customer enthusiasm is natural for Meyco Carbide Tipped Sticker Knives, Cope Heads, Shapers, Moulders and Router Bits. Such carbide tipped cutters generate less heat than steel tools, are fed into the work easier and faster; they last an unbelievably longer time and produce smoother finishes often eliminating a sanding or polishing operation.



Write Dept. 24

Made to YOUR specifications! Inquiries welcome on the application and cost of Meyco carbide tipped cutters.



chemicals, adhesives, etc.; (2) 80,000 sq. ft. of general area for stationary and light operating machinery exhibits; and, (3) 40,000 sq. ft. of semi-outdoor area for heavy equipment and special demonstration displays such as, portable saw mills, materials handling equipment and other bulky machinery requiring extensive space. All exhibit space will be set up in uniform blocks of 10 x 10, 10 x 20, 20 x 20, 20 x 40, and 20 x 60 foot areas.

Rental rates per sq. ft., according to area desired, will range from 75c per sq. ft. to $3 per sq. ft. Mr. Wilkins stated that, "these costs will include not only the customary services; placing the exhibits in booths, furnishing uniform sign, backdrop and dividers. After the show itself, exhibits will be dismantled and placed "on dock." In addition we have attempted to anticipate every possible need of the exhibitor such as furnishing a tool crib, a sign painter, photographer, a daily personnel service of the name and company and hotel address of attendees, and various other services not ordinarily extended to exhibitors.

TAKE

OUT OF YOUR **Profits!**

Not only does uncontrolled dust interfere with the operation of your machinery, it materially reduces employee efficiency. With labor costs at an all time high your profits suffer. You can effectively beat the "dust problem" with a Young & Bertke Dust Collecting System. Call on us, we will be glad to give you our expert advice on either a new system or remodeling your present system to make it more efficient.

Fan and Blower Systems

The YOUNG & BERTKE Co.

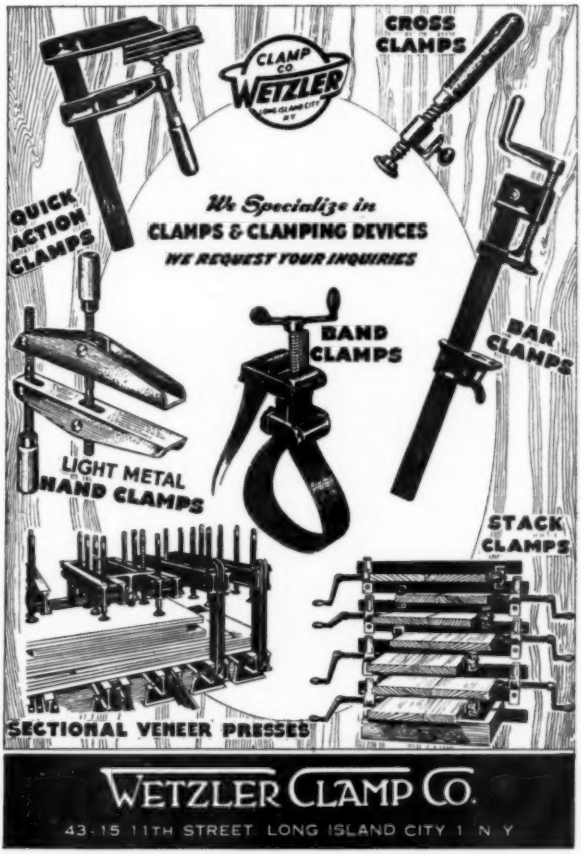
1122 Buck Avenue **Cincinnati 14, Ohio**

"We also have included facilities for a very unusual showing of industrial films. We will have in Convention Hall a theatre seating 500 which will run a continuous display of films throughout the Show on regular schedule. Exhibitors having films of interest may submit them for showing."

The 1951 meeting, stressing cooperation between highly specialized vertical and broad-interest horizontal societies and organizantions, will include participation in technical sessions and the Show by other organizations, Among these are, the Wood Industries Division of the American Society of Mechanical Engineers, The Society of the Plastic Industries and The Society of American Foresters. These have already accepted the invitation to participate. Still other organizations are reviewing their plans for participation.

F.P.R.S. States New Policy

In formulating plans for this 1951 Philadelphia Meeting and Show, the Forest Products Research Society Ex-

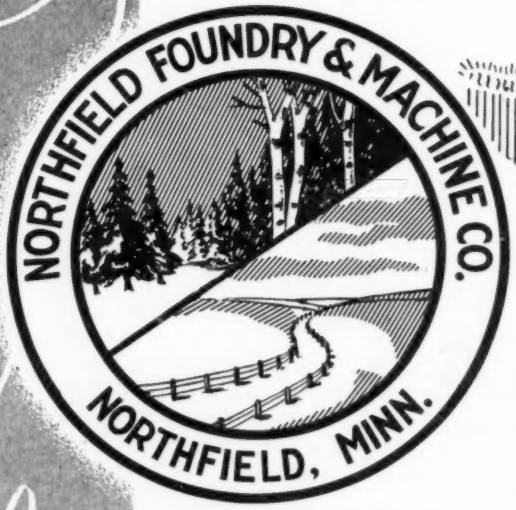


ecutive Board has announced its policy concerning the future of Industry Shows sponsored by the Society. It underwrote recommendations of the Association of Manufacturers of Woodworking Machinery regarding frequency of exhibits on heavy machinery. Specifically, this policy stated, "It shall be the policy of the Forest Products Research Society to hold a Forest Products Industry Show each year as part of its annual meeting with emphasis on heavy equipment and machinery exhibits, not to be more often than once in three years." Thus, the 1951 Show will be the last until 1954 featuring heavy equipment in both static and operating exhibits. It also promises to be one of the largest ever staged in the industry since surveys show that over 26 percent of the nation's entire industry is located within a 100 mile radius of Philadelphia.

NEW QUARTERS

Moisture Register Company of Alhambra, manufacturer of electronic instruments for testing moisture content, is now established in new and larger quarters at 1510 West Chestnut Street, Alhambra, California, according to announcement by John R. Barnes, vice president.

30th *Anniversary*



OF A FAMOUS TRADE MARK

In this, our thirtieth year, we would like to pause long enough to take a brief look back, and say thanks to all our friends and customers whose confidence and patronage has made our success possible.

To those who know us it is probably unnecessary to attempt to describe our principles of honest quality, and full value. To old customers and new, we pledge continuance of these principles which over the years have earned for Northfield woodworking equipment the reputation of sound quality, full value and long life.

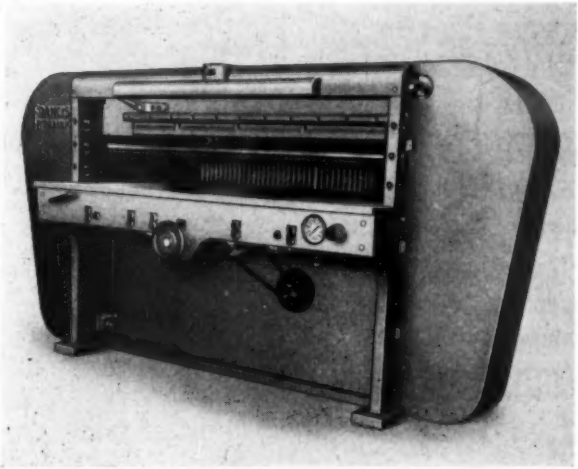
Makers of **HIGH SPEED, PRECISION, HEAVY DUTY**

- **BAND SAWS**
- **SURFACERS**
- **WOOD SHAPERS**
- **JOINTERS**
- **SAW TABLES**
- **MORTISERS**
- **UNIVERSAL WOODWORKERS**

NORTHFIELD FOUNDRY & MACHINE CO.
NORTHFIELD, MINNESOTA

Equipment and Supplies for the WOOD WORKING INDUSTRY

PRECISION CUTTER INTRODUCED



A newly designed, improved and an automatically operated hydraulic, precision veneer cutter and jointer is being introduced to the woodworking, veneer and plywood trades by the Charles E. Francis Company.

The cutter is available in three models, handling stock of 60", 75", and 90". Custom models are also built to specifications. The new cutter was designed with the cooperation of many of the Francis Company's customers and incorporates features discovered in practical production procedures, we are told.

The frame is of welded and bolted steel members, designed with a minimum of parts, yet can be delivered through the average sized openings. The pressure clamp is of the finger type with a maximum of 7" and a minimum of ¾" wide clamping area. Pressure on the clamp is adjustable from approximately 5 to 100 pounds per square inch.

URAC "185"

The Perfect Bonding Agent for Decorative Laminates

EASY TO MIX - EASY TO USE

The properties of Urac Resin Adhesive 185, a development of modern Chemistry, make it the most efficient adhesive for Gluing Decorative Plastic Laminates to Bars, Table Tops, Soda Fountains, Sink Tops. Make your GOOD JOBS * BETTER * by using this remarkable Adhesive

AIR DRY - FORCED DRY

Water Resistant
Stainproof
Rotproof
Low Pressure
Non-crazing

IDEAL FOR R.F. OR H.F.

Designed especially for assembly work. Its low pressure and anti-crazing properties make it ideal for gluing wood where inadequate pressure or irregular surfaces make it impossible to insure close fitting joints. Use for Furniture, Toys, Boats, Millwork, Laminating or wherever a joint stronger than wood is desired.

Now available in small containers

Pints, quarts, gallons, fives, shipped from Iron Mountain, Michigan or 109 Water Street, New Haven, Connecticut. Write today for prices and free bulletin.

*TRADE NAME REGISTERED BY AMERICAN CYANAMID CO., MFR.

THE NELSON COMPANY

IRON MOUNTAIN - MICHIGAN

A feature of the new Francis hydraulic precision cutter is the fact that it may be stopped in any position and returned to an open position without completing the cutting cycle, if desired.

While the back gauge bar is electrically operated, forward or backward, it can also be hand operated for close cuts. It is of the finger type construction and has a maximum cut the size of the cutter and a minimum cut of 3/4".

All the new Francis hydraulic precision cutters are shipped complete with all motors, piping, valves and wiring. They are ready to be connected to the plant wiring and ready to operate.

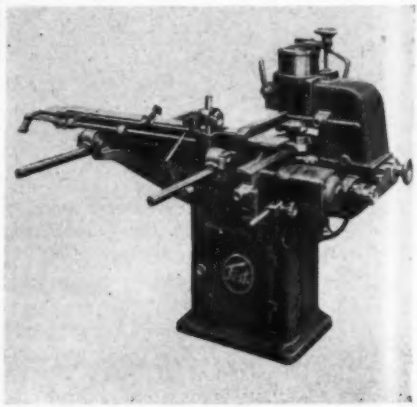
The Francis Company also manufactures hydraulic cold plate presses for all types of laminated work, glue mixers, glue spreaders and electric glue pots.

The new cutter is available now, and further details and specifications will be sent on request to the Company, Dept. WD, Huntington, Ind.

MACHINERY LINE AVAILABLE

Now available to U. S. manufacturers is the Festo line of woodworking equipment. Made in Germany, the Festo line includes chain mortising, drilling, milling, dovetail-grooving machines, circular, portable saws and sanders.

Illustrated is the new tenoning machine which was displayed at the First



FAST, SMOOTH BORING MULTI-SPUR BIT

Quickly bores any arc of a circle in hard or soft woods. And for both cross and end-grain work bores holes at an angle, overlapping, or at close centers without danger of stock splitting.

FREE BORING CHART for wood screws with specifications to simplify bit or drill selection. Write today to Greenlee Tool Co., Division of Greenlee Bros. & Co., 2141 Herbert Avenue, Rockford, Illinois, U.S.A.

TOOLS FOR CRAFTSMEN

GREENLEE

MULTI-SPUR BITS • ROUTING BITS • COUNTERSINKS • PLUG CUTTERS • DRILLS

International Trade Fair in Chicago during August. We are told that it is sturdy and capable of cutting to length, cutting the tenon and counter profiling with a short working stroke.

Send to the Company, Dept. WD, 745 51st St., Brooklyn, N. Y.

HACKSAW ATTACHMENT

A hacksaw that fits all their portable drill models 509 and 539 is available from Skilsaw Inc., 5033 Elston Ave., Chicago 30, Illinois. These drills have a speed of 1800 to 3500 r.p.m. This attachment converts a drill for sawing and filing and so arranged does these jobs much faster than they can be done by hand.

The hacksaw attachment will take regular hacksaw blades in standard or broken lengths, plus special alloy blades carried by the Company. This hacksaw will cut wood, composition, plastic or metal and attaches to the drill by screwing direct to chuck spindle, or by using

drive pin adapter to operate from chuck itself.

For further information write Dept. WD of the above company.

To accept good advice is but to increase one's own ability.—**Goethe**

Received your copy yet?

Write for

FREE CATALOG

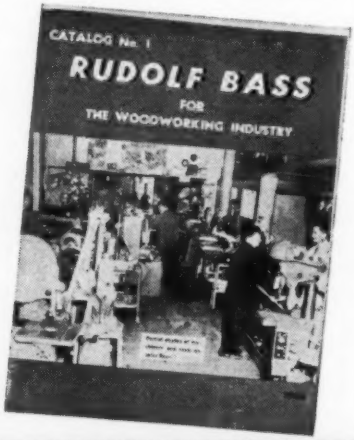
Value! Quality! Service!

IMMEDIATE DELIVERY

"LARGE OR SMALL—WE SUPPLY THEM ALL"

Don't wait until your supplies run out or machines and tools break down — check your needs — Consult RUDOLF BASS — be supplied and satisfied!

FOR WOODWORKING EQUIPMENT & SUPPLIES

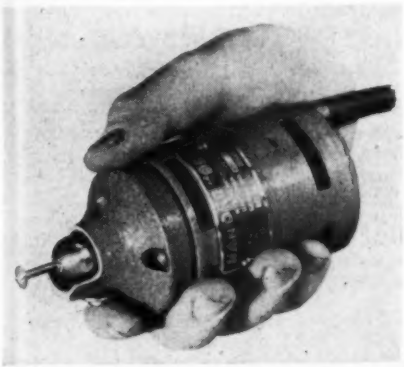


RUDOLF BASS 173-177 LAFAYETTE ST. NEW YORK 13, N. Y.

PRECISION HAND POWER TOOL

A new hand power tool, the "Handee '85'," is said to be suited for industrial production lines as well as for fine handicrafting. It incorporates advanced design features according to the manufacturer which have been developed through 50 years of quality toolmaking.

Balanced and shaped to fit the hand, the "Handee '85'" has an idling speed of 27,000 r.p.m. and a load speed of 20,000 r.p.m. It weighs two pounds and chucks interchangeable spring collets of 1/16", 3/32", and 1/8" capacity. The new chuck construction assures smooth running action with a quick, firm grip on all accessories.



The tool has a cooling arrangement permitting it to run all day long without excessive heating. A steady stream of air weaves and swirls automatically around the motor, keeping its housing comfortably cool to the hand.

A feature of the "Handee '85'" is a cast-in boss, just behind the chuck, which holds easily-attached routing and molding shoes. Precision versatility is thus possible in woodworking; depth of cut is quickly regulated, and 20 different molding cuts can be made.

Although some 200 different accessories are available for use with the "Handee '85'," the firm has assembled 41 matched attachments together with the tool in a steel-gray, fitted metal case.

Additional information and literature may be obtained by writing Dept. WD, Chicago Wheel & Mfg. Co., 1101 West Monroe Street, Chicago 7, Illinois.

ReNew *Gives new life to sandpaper*

AND CUTS SANDING COSTS 50%

Keep your sandpaper cutting for you with ReNew. Apply . . . let it dissolve the pitch or resin . . . then brush it off with a scrubbing brush. It's so easy and quick and makes your sandpaper last at least 3 times as long.

ReNew increases sanding machine efficiency . . . paper lasts longer . . . less changes necessary.

ReNew is non-inflammable.

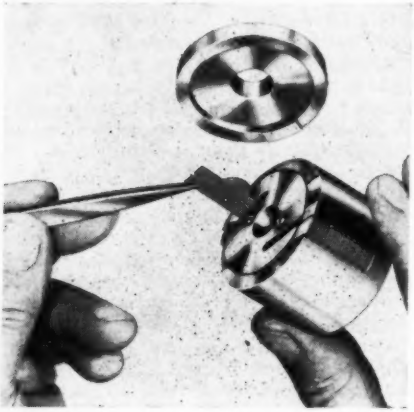
Buy it in 55 gallon drums at $2.85 per gallon, 5 gallon steel pails at $3.00 per gallon, or 1 gallon cans at $3.25 per gallon, F.O.B. Moline, Illinois.

MOLINE PAINT MFG. CO.
MOLINE, ILLINOIS

"MULTIMOLD" SHAPER HEADS

In a three page folder the Photo Research Corp. describes these tools.

The shaper heads can be used in this way. The design of desired moulding is first drawn on template blank. The template material is of special composition and is two sheets lightly cemented together. The templates are cut out with coping saw and then separated and placed in the slots in the head. See illustration.



A sharp spin of the spindle and centrifugal force throws the blades out in contact with the contour that has been cut on the templates. The nut on the spindle is then tightened, thereby clamping the knives and head together in one solid mass. The shaper is then ready to operate.

Any style of moulding can be duplicated, we are told. By using the reverse half of the templates, perfect fitting sanding blocks are produced. Here are some of the operations where "Multimold" heads are usable: moulding, jointing, rabbeting, panel raising, beading, drop leaf hinging, dovetailing, squaring turnings, tenoning, grooving, tongueing, sticking and cope cutting.

For further information, write Dept. WD, Photo Research Corp., 127 W. Alameda, Burbank, Calif.

Installation at

WEST MILLWORK, INC.

HOUSTON, TEXAS

SHEBOYGAN SANDERS

SHEBOYGAN MACHINE COMPANY

SHEBOYGAN, WISCONSIN, U.S.A.

Why is the list of subscribers to WOOD WORKING DIGEST increasing each month? Because the DIGEST publishes the latest developments in the woodworking industry as soon as these are announced.

This timely coverage warrants your readership for each and every issue. So here's a cordial invitation to begin receiving your copy regularly.

It's not necessary to include your check now . . . we will bill you or your company later if you wish. Just tear off this envelope form and mail to us today.

PLEASE ENTER MY SUBSCRIPTION IMMEDIATELY FOR:

☐ 1 year, $2.00 ☐ 3 years, $4.00

☐ 2 years, $3.50 ☐ 5 years, $6.00

☐ Payment Enclosed ☐ Please Bill

Name_____ Title_____

Company_____

Street Address_____

City_____ Zone_____ State_____

Products Manufactured_____

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY ENVELOPE

First Class Permit No. 272, Sec. 34.9, P. L. & R. Wheaton, Illinois

4c POSTAGE WILL BE PAID BY—

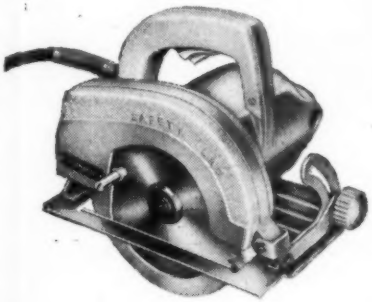
HITCHCOCK PUBLISHING COMPANY

222 East Willow Avenue

Wheaton, Illinois

SAFETY SAW

Stanley Electric Tools of New Britain, Conn., announces the W65 Stanley electric safety saw—a new lightweight 6 inch saw which combines high speed and dependability on all types of jobs. The new W65 with a Universal type, DC or AC motor, 60 cycles or less, 5600 RPM, features perfect balance in any position; a "Multi-Grip" handle-stippled for sure grip; a momentary con-

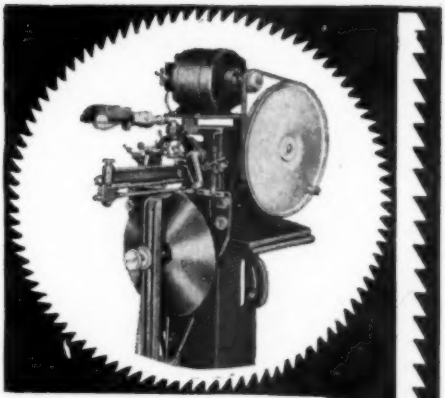


tact switch, and an automatic telescoping safety guard with manual control —easily operated without danger to the operator. A round arbor allows the use of any standard blade. The saw bevels at any angle up to 45 degrees to 1½ inch depth. Cuts up to two inches deep at 90 degrees. Saw housing of die cast polished aluminum, with steel base; helical gears, with full ball and roller bearings throughout. The new W65 safety saw is equipped with a combination rip and cross cut blade, wrenches, and lubricant.

NEW UNIT-LOAD BAND DISPENSER

Stationary and portable models of a new dispenser for Unit-Load Band are now being marketed by Acme Steel Company, Chicago.

Both models hold and cut to length one or two coils of Unit-Load Band, used to reinforce shipping containers, and brace carload shipments. Dispenser speeds up applications of cut-to-length strapping.



Your SAWS

are no better than your

SAW FILING

Inaccurate saw filing can ruin the cutting efficiency of the best saws, perhaps crack or break them. The machine precision of Foley Saw Filing can increase your sawing output 25% to 40%. The Foley *automatically* joints the saw as it is filed, making all teeth uniform in size, height, spacing. Foley-filed saws run cooler, cut fast, do beautiful work — and stay sharp longer. The Foley is the ONLY machine that files cross-cut circular saws, band saws, hand saws.

***30-DAY TRIAL** of the Foley Saw Filer is offered—to show you what a difference Foley-filed saws can make.*

FOLEY *Automatic* SAW FILER

FOLEY MFG. COMPANY
3351 Foley Bldg.
Minneapolis 18, Minn.

Please send literature on the Foley Automatic Saw Filer and details of your 30-Day Trial.

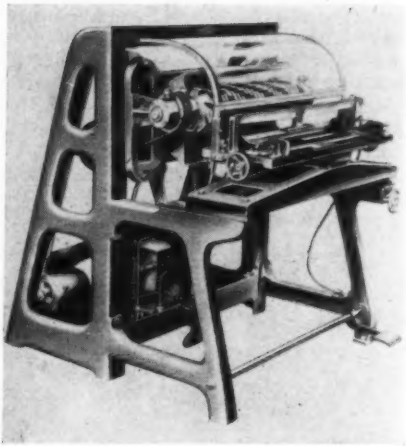
Name.....

Address.....

Bands are cut in a single, low-effort downstroke of the 30 inch hand lever. Problem of over-running band is minimized by V-belt controlled feed. Efficient shear mechanism features tool steel blades, easily accessible for service or replacement.

Any two coil combination of ¾ inch, 1¼ inch or 2 inch band in all thicknesses can be handled by the dispenser. Outer bars adjust to band width, while center separator bar and slide plates are stationary. Optional pair of separators to accommodate ⅜ inch band are obtainable at an extra charge.

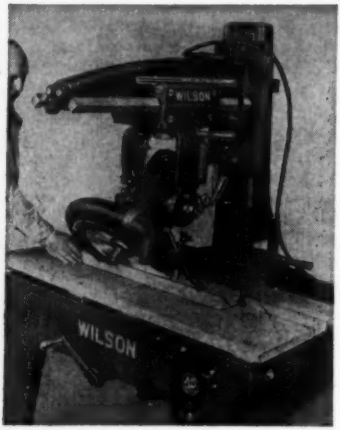
Additional information, Dept. PX, Acme Steel Co., 2840 Archer Ave., Chicago 8, Ill.



LOCK CORNER MACHINE

Of interest to lock corner box manufacturers doing government work, luggage makers, and others whose volume does not justify a large double end lock corner machine, is the new European Grupp single and heavy duty high production lock corner machine. It is being offered for delivery on the American market by Henry Wiegand Corp.

The Grupp Wigo express type 1016,



BEVEL RIPPING . . .
ONE OF OVER 1000
WILSON OPERATIONS

A WILSON IS YOUR BEST INVESTMENT

WILSON
RADIAL CUTTING MACHINE

MAKE YOUR *"PILE OF STOCK"*
Pay EXTRA Dividends with a
STURDY, SPEEDY, ACCURATE
WILSON

For further Information write to

MEDIA MACHINE WORKS,
INC.
MEDIA, PENNSYLVANIA, U.S.A.
Est. 1922

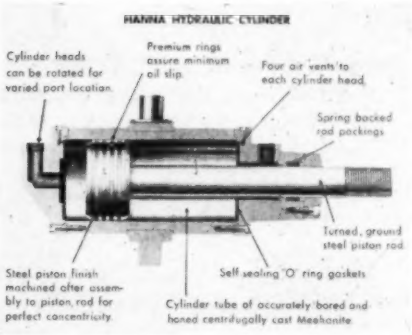
which is offered in mandrel lengths of 17", 25" and 30", powered by from 10 to 15 h.p. motor with multiple V-belt drive, features an integrally built hydraulic feed mechanism powered with a separate motor through an i.v.p. speed changer and foot pedal control.

In addition to open square tongue work, the machine is said to also produce inclined tongue joints, square bottom full open tapered dovetails, finger lock joints for end joining of short stock and tapered wedge-tongue lock corners with maximum gluing surface and minimum grain exposure.

Henry Wiegand Corp., Dept. WD, 501 Fifth Ave., New York 17, N.Y.

NEW HYDRAULIC CYLINDER

Pictured here is a cross section of a representative hydraulic cylinder manufactured by Hanna Engineering Works, 1765 Elston Ave., Chicago, Ill. The cylinder illustrated, Model HP-17, includes the newest design and construction features. This model is one of a complete

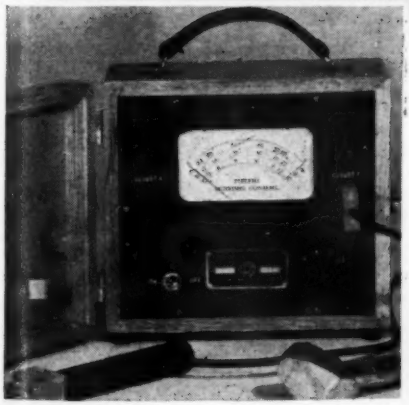

HANNA HYDRAULIC CYLINDER
Cylinder heads can be rotated for varied port location.
Premium rings assure minimum oil slip.
Four air vents to each cylinder head.
Spring backed rod packings
Turned, ground steel piston rod
Steel piston finish machined after assembly to piston rod for perfect concentricity.
Self sealing 'O' ring gaskets
Cylinder tube of accurately bored and honed centrifugally cast Meehanite

line of Hanna high pressure hydraulic cylinders all meeting J. I. C. standards.

Designed for working pressures up to 1500 p.s.i., hp. Cylinders are used for smooth efficient push, pull, lift, press, clamp or control power in hundreds of applications. Eight standard mounting styles are available, with units to meet every mounting requirement.

For further information write Dept.

ACCURATE MOISTURE TESTS WITH THE *Delmhorst* MOISTURE DETECTOR



Accurate measurement helps produce quality items . . . NOTE THE BIG, EASY-TO-READ SCALE . . . eliminates rejects and returns . . . reduces production costs and increases profits. Whether you make fine furniture or produce lumber, you need a Delmhorst. Accurate readings on rough or smooth stock, veneers, plywood and timbers. Send today for complete details as to how Delmhorst Moisture Detectors can help you. No obligation of course.

DELMHORST INSTRUMENT CO.
112 Cornelia St. Boonton, N.J.

WD, Hanna Engineering Works, at the above address.

ROOT CHUCKING MACHINE

This B. M. Root power feed chucking machine is built for chucking the ends of shovel, fork, hoe, wheelbarrow and similar handles, cutting tenons on round, square or rectangular stock and cutting tapered or round tenons.

In operation the spider wheel opens the clamp and the shovel handle is placed in the machine and the clamp closed. The foot treadle is then pressed and the cutter head completes an entire feed stroke. Two rates of feed are provided and the feed may be either automatic continuous or intermittent.

B. M. Root Co., Dept. WD, York, Pa.

AIR CONTROL VALVES

A new design in 4-way air control valves is being announced by A. Schrader's Son. The new valve is ½" size, specially designed for base mounting with manifold pipe ports for concealment of piping. It is designed for unrestricted air passage of 250 cu. ft. per minute at 100 lbs. line pressure.

This new design incorporates, as an actuating medium, a sliding seal valve,

HEINEMANN

HIGHEST QUALITY SAW... BLADES

Improved design gives fast cutting accurate, clean, square and flat bottom grooves. Made in 6" - 8" - 10" - 12" sizes.

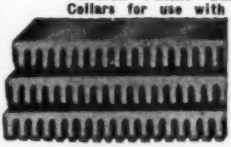
No. 53
DADO SAW

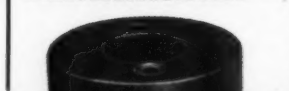
Write for Detailed Catalog

THE F. HEINEMANN SAW & MFG. CO.
CANTON 6, OHIO

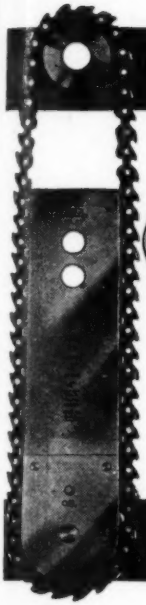
KNOUREK (PATENT) BALL BEARING SHAPER COLLARS

Knourek Patent Ball Bearing Shaper Collars for use with plain beveled edge shaper steel or Lock Edge Shaper Steel. Ask for circular covering Knourek Ball Bearing Shaper Collars and Schmidt Lock Edge Collars. This combination prevents accidents on shaper and knives cannot become loose and fly out of collars.





WOODWORKERS TOOL WORKS
220 S. JEFFERSON ST., CHICAGO 6, ILL.



CHAIN MORTISE
EQUIPMENT
By
FIELD
SINCE 1880

Use our Double Bearing Guide Bars for flat bottom mortises.

NEW ENGLAND'S WOODWORKING MACHINERY DEPOT

WILLIAM H. FIELD CO.
327 DORCHESTER AVENUE
BOSTON 27, MASS.

Burton Saw Co.
WORCESTER 8, MASS.
MANUFACTURERS OF
- LOG BANDS "that stand the feed"
- BAND RESAWS "that cut straight"
- NARROW BANDS "that last longer"

Give Your Band Saw Operator A Treat

A millman 2000 miles away telephoned to see if we would recondition his old saws (other makes) "to cut like the new one" we had just made for him.

SEND US YOUR ORDER TODAY

BURTON STEEL HEAD BAND SAWS

HERE'S LOW COST HOT GLUE FOR YOU

Low, even heat distribution under accurate control is part of your purchase when you buy a Sta-Warm glue pot or tank.

Many, many years of uninterrupted, trouble-free operation is also part of the purchase when you buy Sta-Warm. This outstanding performance results in negligible maintenance cost.

Together, here's really low cost hot glue for you. Inquire for prices and capacities today.

½ to 11 qt. glue pots with removable inserts.

Sta-Warm ELECTRIC CO.
101 N. CHESTNUT ST. • RAVENNA, OHIO

HERE IT IS!

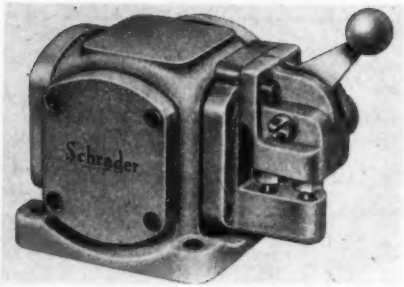
A Dependable, Inexpensive Addition to Your Material Handling Equipment.

LIFT TRUCK JACK & PLATFORM

The lowest price combination available in semi-mobile factory or shop handling equipment. You can't beat it for semi-heavy work or convenience. Equipped with steel or rubber wheels.

Write for Complete Literature

GLOBE VISE & TRUCK CO.
203-07 Front Ave. N.W.
Grand Rapids 4, Michigan



while the main body has a diaphram sealing action.

A. Schrader's Son, Division of Scovill Manufacturing Co., Inc., 470 Vanderbilt Ave., Brooklyn 17, N. Y.

SANDING WHEELS SOLVE FINISHING PROBLEM

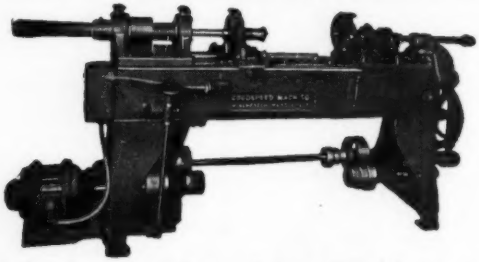
In the manufacture of table moulding at the Houston plant of Modern Trends Furniture, two Sand-O-Flex sanding wheels were mounted just beyond the sticker. This special moulding is irregular in shape and it was felt that brush-backed sanders, capable of sanding contours, might perform satisfactorily. One was mounted directly above, and one below the machine, and the pair continuously sand the moulding as it comes out of the sticker. The same motor drives both wheels by use of a special arbor for the wheel underneath.

This same method has been used to advantage by other furniture and venetian blind manufacturers, and has even proved a satisfactory method for satin finishing stainless steel moulding. These sanding wheels consist of a metal case which contains 12 replaceable brushes fastened to the outer rim. A cartridge of abrasive cloth is housed inside the casing. It contains 12 separate strands, fastened to a central core, in a continuous roll. The wheel is loaded so that each strand protrudes from the case in front of a brush. As the abrasive wears, the cartridge is unwound and worn ends cut off. When abrasive cartridge is completely used up, another

GOODSPEED

VARIETY LATHES

Automatic Self-feeding Ball bearing



For various kinds of turnings from the smallest size up to 3" diameter and 7½" long. We can furnish FOUR different types in FOUR different capacities for turnings up to 1½", 2", 2½" and 3" in diameter.

Write for bulletins covering these fast money saving lathes which are easy to set up and cover a wide range of work.

GOODSPEED MACHINE COMPANY

WINCHENDON, MASS. -:- U. S. A.

THE HURRICANE MODEL J-6

1¼ HP Portable Router, immediate delivery

$124.50 F.O.B. Chicago

Universal 110 volt AC-DC, 1¼ HP, Speed 18000 RPM Motor. Switch conveniently located. Air cooled—New Departure sealed ball bearings.

Outer housing high finished. Threaded and fitted with adjusting ring, allowing perfect depth control.

One ⅝" Template guide furnished, various lengths and diameters can be made on request.

Hurricane Machine Wks. 6316 Wentworth Ave. Chicago 21, Ill.

U.S. MORTISE CHAIN

BARS AND SPROCKETS

for All Chain Mortisers

Main Office and Factory

U. S. CUTTING CHAIN MFG. CO.

95 SPARK ST. BROCKTON 64, MASS.

VULCAN

ELECTRIC GLUE POTS

Thermostat control

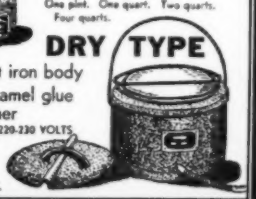
WATER JACKET TYPE

Heavy cast aluminum with attached bowl.

110-120 VOLTS or 220-230 VOLTS AC or DC.

One pint. One quart. Two quarts. Four quarts.

DRY TYPE



Heavy sheet iron body
Porcelain enamel glue container

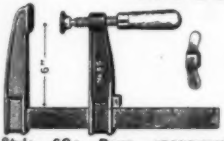
110-120 VOLTS or 220-230 VOLTS AC or DC.

One quart. Two quarts. Four quarts.

VULCAN ELECTRIC CO

DANVERS 11, MASS.

"HARTFORD" CLAMPS

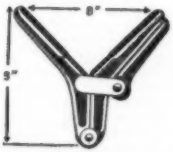


Style 6G: Deep engagement clamps. Quick acting. Take the place of "C" clamps. Speedily adjusted.

Style 5: For interior woodworking, body building, furniture, sash and door manufacture. Rigid action tail piece. Quickly adjusted.

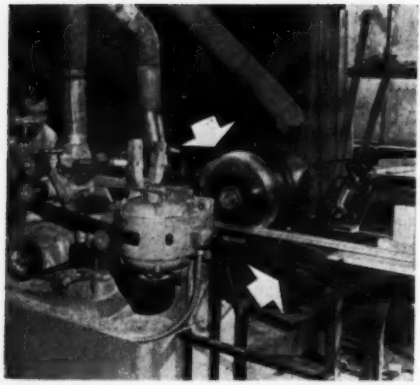
32 Clamp Styles Available.

Write for free catalog Today.



No. 62 Mitre: Planed off jaws with hardened steel pins just long enough to hold work.

The HARTFORD CLAMP COMPANY EAST HARTFORD, CONN. Est. 1915



Two contour sanding wheels are mounted just beyond the sticker in the furniture fabricating plant of Modern Trends, Houston, Tex. One sander mounted above and one below operate off the same motor at high speed and automatically finish table moulding as it comes out of the machine. Average sanding time of 15 minutes per table is reduced to 5 minutes by this installation.

is inserted. As wheel is rotated, the brushes "cushion" the abrasive, forcing it over irregular surfaces with a "paint-brush" action. Sand-O-Flex sanding wheels are manufactured by Merit Products, Inc., Culver City, Calif.

AUTOMATIC DRUM WARMER

A warmer that is in reality an oven for heating drums is now available through the Harold L. Palmer Co., 6432 Cass Avenue, Detroit 2, Mich. It has been found ideal for heating drums of glue and other materials over night so that they are ready for use in the morning. They also are excellent for maintaining required temperatures of contents of drum where only a few gallons per hour are removed; as a heating jacket around drums used for mixing small batches at controlled temperatures; for use with mechanical agitator in cold drums of paint, enamel, etc., to have such material arrive at proper spray gun temperature.

SAVE MONEY IN YOUR WOOD FINISHING DEPT.

Improved DETROIT HANDY "TAC" RAG NON INFLAMMABLE

Standardize on DETROIT HANDY "TAC" RAGS and stop losses due to rejections. Specify "DETROIT" for removing all particles of dust, lint and sand. Try this modern method today. Order from your supplier at once, or send for sample.

DETROIT HANDY "TAC" RAG

DETRO MFG. & SALES CO., INC., CULVER CITY, CALIF.

Prompt Delivery
Factory Trucks

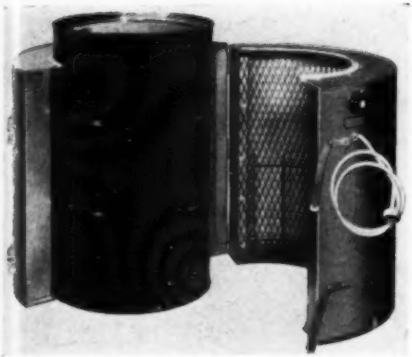
Size 1
24" x 48"
Size 2
30" x 48"
Size 3
30" x 60"

Ask For Literature

EFFICIENT, ECONOMICAL

Jakes Foundry Co.

400 - 29th Ave. Nashville, Tenn.



The temperature controller limits the temperature of the heated air surrounding the drum walls to whatever setting is on the dial. The heat is thermostatically controlled — set at any desired temperature and that temperature will be maintained.

Average heating time for most materials is about 20°F rise per hour. This varies, of course, according to the heat absorption qualities of the drum contents and the thermostat setting.

For further information write Dept WD, of the above company.

SPEEDMATIC BELT SANDER

Porter-Cable Machine Company announces a heavy duty, dustless, 4-inch belt sander, Model 500. This new sander, a Speedmatic machine, has been designed to produce for the furniture manufacturer, millworker, toy and novelty manufacturer.

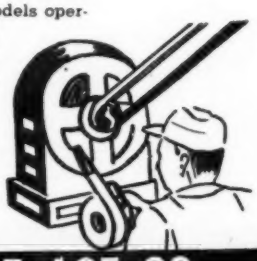
A low center of gravity and the wide belt make the sander easy to handle. The large capacity, 4" x 27" belt puts a 25 square inch abrasive surface on the work at all times. High powered turbine fan vacuum system assures dust-free operation and longer belt life. Standard equipment includes: dust bag and nozzle assembly, resilient cork pad and steel shoe covering, 6 assorted belts, 4" x 27", wrench, tube of grease for chain housing and for gear housing.

ACE *Portable Blower*

Cleans-Fast-Safe and at less cost!

Cleans motors, planers, all machines fast. Prevents over heating and reduces fire hazards. Four handy models operate from any socket. Write for details and

FREE TRIAL OFFER



THE ACE CO.
122 W. Washington St. Ocala, Fla.

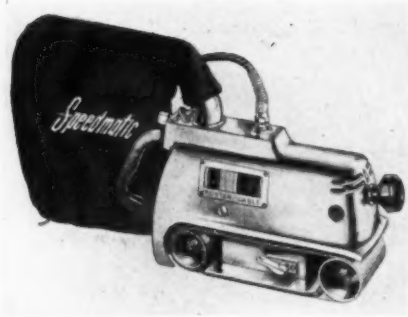
MILWAUKEE WROT WASHERS
SINCE 1887

WASHERS - BLANKS STAMPINGS

Your most dependable source of supply—the world's largest manufacturer of Washers, serving Industry since 1887. Over 22,000 sets of Dies.

Submit your blueprints and quantity requirements for estimates.

WROUGHT WASHER MFG. CO.
The World's Largest Producer of Washers
2261 S. Bay Street Milwaukee 7, Wis.



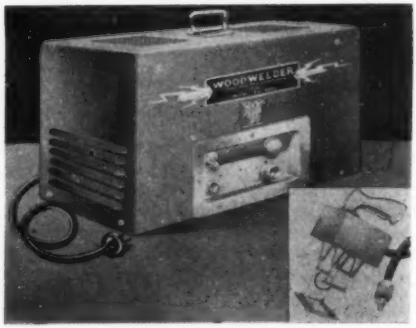
The sander is especially recommended for stock removal and finishing on desks, table tops, panel doors, wide shelving, etc.

Porter-Cable Machine Co., Dept. WD, Syracuse 8, N. Y.

WOODWELDER ADDITION

During the seven years of their work in the woodworking and other fields, Woodwelding, Inc. have devoted much time and money to research. They tell us they have combined all this research and the constantly added refinements in a new compact and powerful addition to their line called the "Wood-Ray."

A few of the features claimed for the "Wood-Ray" include automatic tuning of the FC 1000 watt generator to the correct RF power for the right load for various materials. To prevent arcing and glue sticking electrodes are sili-



LION Miter Masters

Precision Cutters

- Miters door, furniture trim, sash, screen, frames, casket work.
- Finest machining and fitting throughout.
- Gauge Stops for production runs.

Bench Model, $59.50; cuts 1¾" moulding. Foot powered model, $123.40; cuts 2¼" wide. Leaves hands free for aligning work.

Write for full Information

Also, Lion Trimmer for finish trimming to any angle, $51.75. All prices F.O.B. Stratford.

POOTATUCK CORP. 14 Sammis Pl. Stratford, Conn.

Cascade CARBIDE SAWS

RIP SAWS
For all types of automatic and hand feed machines. 24 tooth for general purposes. 30 & 40 tooth for smoother finishes.

CROSS CUT SAWS
For production operations on Swing Saws, Double-end Tenoners-Table and Pull Saws.

PATCH SAWS
For plywood patch work and similar jobs.

CASCADE SAWS LAST LONGER
They have extra long life. 24 hour sharpening service on all makes of Carbide Saws.

Dealers wanted. Write today for full details.

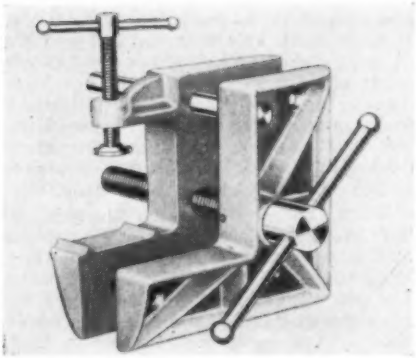
CASCADE SAW & TOOL
BOX 179
CHEHALIS, WASHINGTON

cone coated. For tacking, patching, heavy duty production as well as getting into hard-to-reach places, they have a small micro-switch equipped gun. Power for this hand gun is obtained by pressure on the micro-switch lever. The generator and hand gun together weigh only 75 pounds. The gun cable is guaranteed and the generator will work on 120 volt-single phase-50-60 cycles. It is harmless to paint and varnish and will cure glue lines through wood of 4/4 thickness.

Write Dept. WD, Woodwelding Inc., Burbank, Calif.

NEW VISE

The new saw horse vise or woodworker's vise by Brink & Cotton can be used in any portable situation, adaptable for either horizontal or vertical work. It is entirely made of gray iron and finished in bright green enamel. It clamps to anything up to 2 inches, with the jaws opening 4 inches. It is lightweight, solidly built.

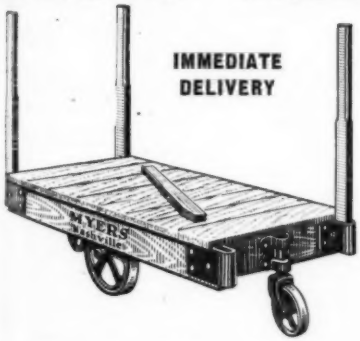


Brink & Cotton Manufacturing Co., Dept. WD, 3 Poland St., Bridgeport, Conn.

TANK DRAIN FOR AIR COMPRESSORS

The Brunner Mfg. Co., of Utica, New York, are placing on the market a new tank drain which they believe will be

MYERS "TOUGH BUILT" TRUCKS



Capacities: 1500 to 5000 lbs.
Platform Sizes: 21 x 42" to 36 x 72"

Catalog and Prices upon Request

MYERS TRUCK & CASTER CO.
914 Trinity Lane . . . Nashville 7, Tenn.

FESTO TENONING MACHINE
with 3 or 4 motors
cut to length
cut tenon
cut cope
cut groove
Accurate, Clean and Fast

FESTO-SPECIAL WOODWORKING MACHINES
745 - 51st St. Brooklyn 20. N. Y.

of great value to air compressor users. It is simple in construction and positive in operation, with only two moving parts, a piston and a plunger. They have named the new product the Brunner-Matic tank drain. The air released from the after-cooler through the unloading device located on the electric pressure switch actuates the tank drain.

When the tank pressure has reached the pressure for which the control switch is set, the contacts drop out, causing the unloading device to operate. The air trapped in the after cooler located between the exhaust or discharge side of the compressor and the tank check valve is deflected through the Brunner-Matic, which is installed between this point and the tank drain outlet.

The Brunner-Matic can be driven by air exhausted from a centrifugal or magnetic unloader. Connect outlet part of such an unloader to the top opening on the Brunner-Matic. The blast of air released from the after cooler is utilized to actuate the piston of the Brunner-Matic. The downward thrust of the piston causes the valve plunger to be depressed, allowing the air to be drained from the bottom of the tank, carrying with it moisture, oil and other impurities accumulated during the running cycle.

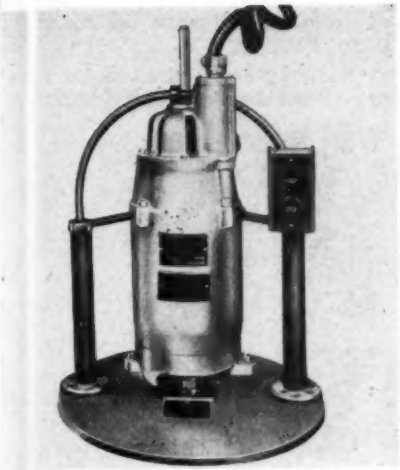
For further information, write Dept. WD, of the above company.

HEAVY DUTY, HIGH SPEED, PORTABLE ROUTER

Powered by a 5 HP Onsrud, high cycle, electric motor with a spindle speed of 15,000 RPM this new unit, made by Onsrud Machine Works, Inc. is known as the W-215 router.

The new router is available for a wide variety of production operations in routing or shaping. It can be used for routing four and six-quarter plywood and other heavy materials including aluminum. Open panels such as plywood sink tops, window openings in trailer and coach bodies and shaping

Carter
CUTS COSTS WAY DOWN!
CARTER MICRO-PRECISION GUIDE
Now! Carter introduces its new line of ball-bearing and Oilite Precision Guides for all sized bandsaws. Carter products universally accepted as standard equipment by leading bandsaw manufacturers.
MODEL | LARGE | MED. | SMALL
BALL BEARING WHEEL | $15.00 | $13.50 | $12.00
OILITE WHEEL | $10.00 | $ 8.50 | $ 7.00
SAWS | ⅛"-1¾" | ⅛"-1¼" | ⅛"-⅝"
PRICES SUBJECT TO CHANGE
Write For free illustrated folder!
CARTER PRODUCTS COMPANY INC.
55 Mount Vernon, N.W., Grand Rapids 4, Mich.



plywood dinette table tops are only a few of its production uses.

The high speed rotation of the cutter results in a smooth edge, free of any lifting of grain. The large plate fixture which is a part of the router also acts as a rest upon which the entire weight of the router rides as the work is performed. Many different operations can be performed.

Other uses for this router result from the fact that it can be adapted as the power unit for a table shaper. By the addition of an over-arm bracket and guide pin, the entire assembly becomes a combination table shaper or router. The router unit can be used with any shank type router bit or shaping cutter.

For complete information on the Onsrud W-215 router, write the Onsrud Mach. Wks., 3947 Palmer St., Chicago, Ill.

HAND TOOL WITH MANY USES

With a twist in the desired direction and a few raps with a hammer, screws, bolts or nuts can be tightened or loosened with a new hand tool called the Impakdriver. Impakdriver is constructed on a cam principle that translates the impact from a hammer's blow into an amazing amount of torque.

"Jorgensen"
CLAMPS

Jorgensen offers a complete selection: Hand Screws, Drop Forged and Malleable "C" Clamps, Steel Bar Clamps, "Pony" Clamp Fittings and miniature "C" Clamps — the very best in service giving quality.

ADJUSTABLE CLAMP CO.
"The Clamp Folks"
418 N. Ashland Ave., Chicago, 22, U. S. A.

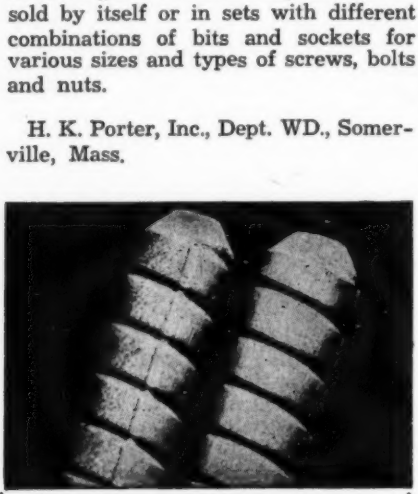
UNIFORMITY OF SASH PATTERN IS YOURS... INDEFINITELY
when you use
SHIMER SASH HEADS
WITH LONG-LIFE CIRCULAR BITS

You can produce and reproduce sash moulding patterns without a variation . . . clearance protected Shimer circular bits hold their shape indefinitely! They're quick, easy to sharpen, designed for all-around clearance cut! Long runs or short—cut your sash mouldings the economical Shimer way and pocket extra profits!

WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!
SAMUEL J. SHIMER & SONS, Inc
85 RACE STREET • MILTON, PENNA.
SHIMER

Particularly useful for starting stubborn nuts, bolts or screws that are rusted or frozen on, the tool also provides a simple answer for working in hard-to-get-at places. Impakdriver is sold by itself or in sets with different combinations of bits and sockets for various sizes and types of screws, bolts and nuts.

H. K. Porter, Inc., Dept. WD., Somerville, Mass.



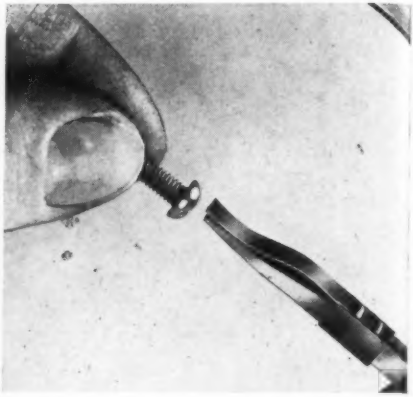
HIGHEST QUALITY DOWEL PINS

Now available in kiln dried Beech and Hard Maple in 5/16", ⅜", 7/16", ½" and ⅝" sizes. Spiral grooved. Also ready for shipment are Dowel Rods made from Hard woods in sizes 3/16" through 1-7/16". Let us quote on your requirements. Prompt Shipment.

BURROUGHS-ROSS-COLVILLE CO.
P. O. Box 271-A, McMinnville, Tenn.

SCREW DRIVER HAS SCREW HOLDER

Called the Vaco Klipxon, a new screw driver is announced which is equipped



with a sturdy screw-holder. This screw holder is in the form of a spring clip which may be slid back up the shaft and out of the way when not needed.

With the Vaco Klipxon, it is easy to secure a screw to the screw driver bit for starting a screw in a recessed hole, and equally easy to extract the screw. There is no interference from clumsy mechanical contrivances while inserting or removing screws from deep holes. Even the smallest screws may thus be gripped, easily and safely.

Vaco Products Co., 317 E. Ontario St., Chicago 11, Ill.

"A word of advice. Don't give it."

CUTTERS, SHAPER, ROUTER JOINTER & CARVING

WRITE FOR CATALOG
ANTHE MACHINE WKS.—Covington, Ky.

NAHB ANNUAL MEETING

An imposing program to equip the nation's home builders to cope with material scarcities, financing restrictions, cost problems and other prospective production uncertainties is being readied for the Annual Convention and Exposition of the National Association of Home Builders in Chicago, January 21-25, according to Frank W. Cortright, executive vice-president.

He declared that building conditions during the months ahead will challenge the ingenuity and business ability of every home builder.

"The unforeseen day to day changes which are and will be taking place will place a premium on reliable facts in making business decisions," Cortright said. "Besides keeping fully informed on such matters as financing, taxes and material supplies, successful builders must take steps to utilize the latest technical developments in home building."

The show will fill all exhibit space in the Stevens and Congress Hotels. Early plans of exhibitors indicate an unusually wide variety of products will be shown, many of them for the first time.

The association is preparing for a record breaking attendance at the five-day meeting according to E. M. Spiegel, convention chairman. The increase in NAHB membership, the changing economic picture and a barrage of attendance promotion activities have stirred up a remarkable amount of pre-convention interest among the members, he said. Advance registration and hotel reservations will be made through local NAHB chapters beginning November 1.

There are people who roll out the carpet for you one day—and pull it out from under you the next.

—The North American Union News

CLICK'S VENEER TABLES

For Manufacturers, Dealers — Anyone Who Works With VENEER, PLYWOOD, CUT LUMBER, BOXES, ETC. • • •

A handy book of accurate tables for quickly determining square feet contents of veneer and the cubic contents of logs, complete to fractional units.

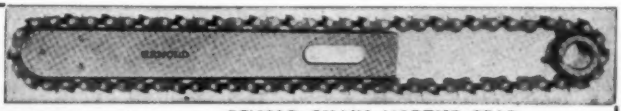
Users tell us it pays for itself in a month in time saved and errors eliminated.

SEND FOR YOUR COPY TODAY

ONLY $7.50 POSTPAID

MRS. A. GRAHAM CLICK
538 W. Main St. Elkin, N. C.

"Tool Up With Woodworkers"



DOES YOUR MORTISE EQUIPMENT MAKE A CLEAN, STRAIGHT CUT LIKE THIS?

RENOLD CHAIN MORTISE GEAR

Fits any chain mortising machine. Renold mortise gear is made by specialists in the manufacture of transmission chains. It embodies the best design, finest skill in workmanship and these factors, combined with the specially selected steels employed, insure users of Renold gear the maximum result. Write for prices, advising kind of machine you have and size of mortise you wish to cut.

WOODWORKERS' TOOL WORKS
220 South Jefferson St. Chicago 6, Ill.

NEW FIRM

Organization of the John Hancock Manufacturing Co., which will produce California redwood indoor and outdoor furniture, casket shells, crates, and export domestic and casket shipping boxes, has been announced in San Diego, California, by John Hancock, president of the new firm.

The company has purchased the redwood products division of the Solar Aircraft Co., and will move production facilities immediately to leased space in the war-surplus former Plant 2 of the Consolidated-Vultee Aircraft Corp., in San Diego.

Hancock resigned executive positions with the Newport Steel Co., of Elkhart, South Bend and Indianapolis, Ind., to organize the new firm.

CONSTRUCT HIGH POINT PLANT

A new plant is under construction to house Perkins Glue Company activity in the southeastern section of the United States. Site of the latest addition to Perkins' facilities is High Point, North Carolina, center of a highly productive area in the furniture and plywood industries.

It is expected that the new plant will be ready for operating by the latter part of this year. It will provide up-to-the-minute source of glues and gluing service in the South. Twenty-four-hour service will be maintained for glue users.

CUMMINS PURCHASES WAPPAT TOOL LINE

Paul Jones, president of American Security (A.S.C. Corporation) Marion, Indiana, and president of Cummins Portable Tools Division, Chicago, announces the purchase of the assets of Fred W. Wappat, Inc., of Mayville, New York, for 25 years manufacturers of portable electric hand-saws for the industrial and heavy construction fields.

The newly acquired property will be operated by Cummins as the Fred W. Wappat Division. The entire Wappat personnel and identity of the Wappat Line will be retained.

IN THE SOUTHWEST

KNIVES—CUTTER HEADS—MILLED BITS—MADE FOR

FENTON

BY WISCONSIN KNIFE WORKS

EKSTROM CARLSON HI-SPEED MOULDERS

RANDALL N. FENTON

P.O. BOX 4065 TULSA, OKLAHOMA

You step up your production with Supreme Knives... milled to exact specifications... to insure a perfect fit in the machine. Made from the correct alloy steel for your particular job, Supreme Knives work harder... longer. The expense of early re-sharpening and replacing is eliminated.

We design and make Special Knives to your requirements.

THE SAW & KNIFE SPECIALTY CO.
6526 CARNEGIE AVENUE • CLEVELAND 3, OHIO

High Speed HANGER BOLT DRIVING . . .

A NEW, FAST OPERATION TIMED IN SECONDS!

This tool is used by a majority of plants where hanger bolt driving is done on a high production basis. Can be operated at any speed which is safe for driving the hanger bolt. (It is not necessary to stop rotation at any time.)

- AUTOMATIC TAKE-UP FOR WEAR ON JAWS
- REVERSING POSITION OF CLUTCH GIVES DOUBLE WEAR AT HALF COST
- AFFORDS ACCURATE PROJECTION HEIGHTS
- USE WITH ANY AIR OR ELECTRIC DRILL OR DRILL PRESS

Write for Free Literature, TODAY!

TITAN TOOLS

TITAN TOOL CO.
Production Tools
49 Main St. FAIRVIEW, PA.

Hamilton
FACTORY TRUCKS

ESPECIALLY DESIGNED FOR THE WOOD-WORKING INDUSTRY

NO. 800

Cap. 1500 lbs.

Heavy Duty Wheels and Casters

Standard sizes 24" x 48"—30" x 48"—30" x 60". Special sizes and styles to order—capacities up to 7500 lbs.

Write for descriptive circular and low prices.

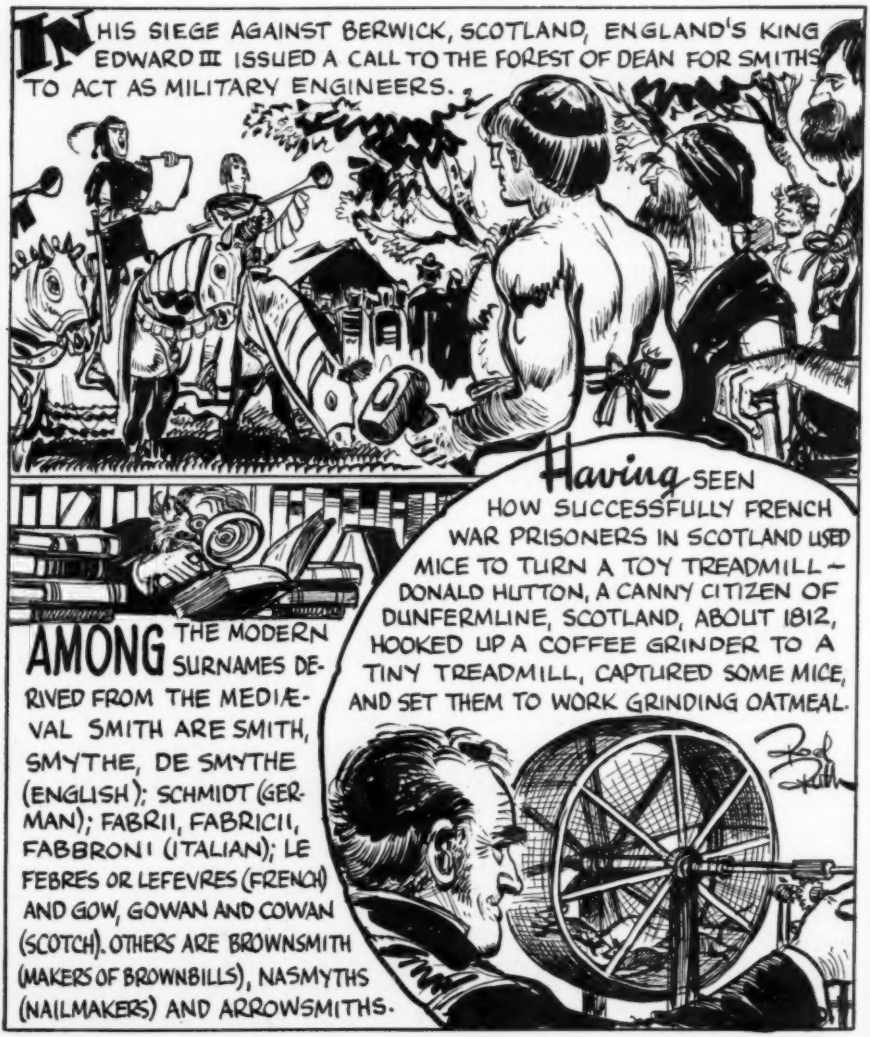
THE HAMILTON CASTER & MFG. CO.
1800 Dixie Highway Hamilton, Ohio

SAVE MONEY ON SANDING OPERATIONS

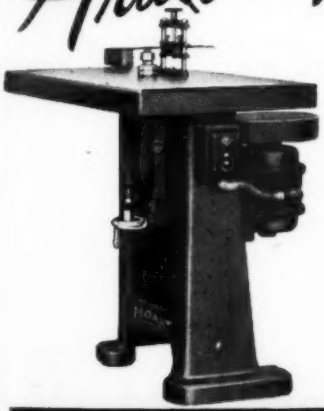
by using our GRAPHITE COATED CANVAS. This acts as a lubricant, reducing friction against back of sanding belts, increasing their life and speeding up operations. Used on endless belt, edge, chairback sanders and handblocks. $6.50 per yard 36½" width, $1.20 per yard 6" wide, f.o.b. Chicago. Other widths proportionate cost. Write for sample, stating size required for testing. EXTRA HEAVY Graphite Coated BELTING available at $10.75 per yard, in 36" width.

PROCESS ENGINEERING CORP. 1748 West Fulton Street Chicago 12, Illinois

Mechanics Through The Ages


IN HIS SIEGE AGAINST BERWICK, SCOTLAND, ENGLAND'S KING EDWARD III ISSUED A CALL TO THE FOREST OF DEAN FOR SMITHS TO ACT AS MILITARY ENGINEERS.
AMONG THE MODERN SURNAMES DERIVED FROM THE MEDIÆVAL SMITH ARE SMITH, SMYTHE, DE SMYTHE (ENGLISH); SCHMIDT (GERMAN); FABRII, FABRICII, FABBRONI (ITALIAN); LE FEBRES OR LEFEVRES (FRENCH) AND GOW, GOWAN AND COWAN (SCOTCH). OTHERS ARE BROWNSMITH (MAKERS OF BROWNBILLS), NASMYTHS (NAILMAKERS) AND ARROWSMITHS.
Having SEEN HOW SUCCESSFULLY FRENCH WAR PRISONERS IN SCOTLAND USED MICE TO TURN A TOY TREADMILL — DONALD HUTTON, A CANNY CITIZEN OF DUNFERMLINE, SCOTLAND, ABOUT 1812, HOOKED UP A COFFEE GRINDER TO A TINY TREADMILL, CAPTURED SOME MICE, AND SET THEM TO WORK GRINDING OATMEAL.

Artist in Wood ...and his Moak Single Spindle Shaper



Here's an artist who puts sales-appeal in wood fixtures. How? By a combination of two things: his skill and the consistent accuracy of his Moak Single Spindle Shaper.

Spindle speeds up to 12,000 rpm, high-speed bearings with positive lubrication, vertical motor on adjustable base—these are some of the features you get with a Moak Shaper. And with Moak Speedicut Shaper Cutters you can prepare special shapes at production-mill speed.

Write for details on Moak Shapers and Cutters today.

MOAK MACHINE & TOOL CO.
MOAK
PORT HURON, MICHIGAN

buyers' service

AVAILABLE WITHOUT CHARGE TO OUR READERS

If you will list below the wood-working machines, supplies or machine shop equipment in which you are interested and mail this page to us, we shall be glad to refer your needs to the manufacturers or others in position to serve you. Replies will come from them — not from us.

If you have any special shop problems let us have the details. Often we can make helpful suggestions.

WE ARE IN THE MARKET FOR .....

.....

.....

.....

.....

.....

.....

.....

.....

NAME .....

ADDRESS .....

Please Check

☐ NEW EQUIPMENT

☐ USED EQUIPMENT

MAIL TO

HITCHCOCK PUBLISHING CO.

222 E. WILLOW AVE. WHEATON, ILL.

Phone: WH eaton 8-3400

THE MARKET PLACE

FOR SERVICE
FOR EMPLOYMENT
FOR USED AND REBUILT EQUIPMENT

Rates for Classified Advertisements

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of $7.00 for name and address and a five line advertisement. For additional lines, only 70c per line.

DISPLAY ADVERTISEMENTS: 1 inch (Minimum), $8.00; 2 inches $16.00; 3 inches (Maximum), $23.00.

Write directly to those offering the machine for sale, for prices and full descriptions. If what you seek is not advertised, write Hitchcock Publishing Company, 222 E. Willow Ave., Wheaton, Ill., making known your wants on either new or used machinery and the publisher will gladly assist you.

FOR SALE

STANDARD OF COMPARISON
THE "HART" LINE

Largest stock of used machinery in America, many ball-bearing, motorized. Substantial savings. Prompt shipment. Write for our list. We equip plants completely. We also buy complete plants or individual machines.

Earle Hart Woodworking Machine Co.
565 W. Washington Blvd., Chicago 6, Ill.
Phone RAndolph 6-4970

FOR SALE

American Machinery Exchange Inc.
Woodworking Machinery—new & used
2040 — 2044 W. Lake St., Chicago 12, Ill.

Moulders, sanders, self-feed rip saws, band rips routers, glue jointers, saw tables, planers, and many other items of new and used machinery.
Send us your inquiry.

FOR SALE

Woodward Machinery Co.
309 E. Second St. Cincinnati 2, Ohio

Belt sander, Schimmel roll table and 5 HP motor, $350
Blower, American BB, 25 in. new, $85
Blower, 25 in. with cyclone, $125
Cutoff saw, Porter A-43 st. line BB MD, $250
Dowel Mch, Hawker No. 2, $350
Flooring Mach., B&M, 4 side with Shimer hds., $850
Glue jointer, Yates, No. 213 with BB, $550
Jointer, Buss 24 in. round head, $185
Jointer, Craftsman, 6 in. with motor, $75
Lathe, P. & B. auto variety and spdle., $200
Moulder, B&M, 12 in. 4 side, $850
Moulder, Smith 6 in. 4 side, $400
Planer, Dennis, 30x6 sgl. cabinet heavy, $450
Planer, Parks, Pony, 12x4, $125
Ripsaw, American No. 2 roll feed, $300
Ripsaw, F&E 362 st. line, self feed, $550
Saw, Crescent variety with 5 HP motor, $150
Sticker, Smith, good, 6 in. one side, $250
Swing cutoff saw, Beloit BB Mtr. on arbor, $175

FOR SALE

Woodworkers' Tool Works
220 S. Jefferson St. Chicago 6, Ill.

Boring machines, single vertical motor driven
Chain Mortiser, electric hydraulic feed, new, $1177.00
Chucking machines
End clamps, Handy, jaw 3½" high
Hand Hole Machines
Jointers, 4"—6"—12"—24"
Lock corner machines
Planer, Whitney 30" double, with new ball bearing in top and bottom heads, sectional double infeed rolls, flexible chip breakers, motor driven, Vee belt drive
Planer, American No. 444, 36", motor driven, ball bearing, round head, sectional feed and chip breaker grinding attachment
Planers, Belsaw 12", ball bearing
Relishers, Door and Sash
Rip Saws, self feed and gang, new
Routers, portable, floor type and stair
Sander, Mattison No. 427, hand block
Sander, Wysong and Miles, 26" disc and spindle, motor drive
Sanders, pneumatic and brush
Saw franking machine
Saw, chain feed rip, Defiance
Saw, cut-off, double end, Chgo. No. 12
Saws, band, all sizes
Saws, scroll, ceiling and self contained
Saws, swing, self contained
Saws, radial arm
Shaper, Whitney double No. 39-A motors on arbors
Tenoner, Hall & Brown, single, roller table
Window frame machines
Wood trimmers, all sizes.

FOR SALE

L. R. Kenner
3325 Trinity Road Louisville 6, Ky.

Band saw, 36" Crescent ball bearing Carter Disc wheels, 3 HP direct motor drive.
Cut-Off Saw, Newman No. 38 Straight Line.
Dovetailer, rebuilt Dodds 15 spdl., motor dr.
Grinder, Woods No. 227-M cutterhead, motor dr.
Rip saw, F & E No. 362, chain feed
Veneer press, 42x84" Francis hydraulic with pump I-beams and turnbuckles.
Veneer redrier, 36x72" Merritt 3-plate, m.d.

FOR SALE

S. W. Harrington Inc.

P. O. Box 230 — **Asheville, N. C.**

Air Compressors, various sizes
Bandsaw, Amer. 42" pb. bd.
Band Saw, New Crescent 20" bb. dmd.
Band Saws, Amer. B-36 36" bb. dmd.
Band Saws, New Moak 36" bb. dmd.
Borer, Amer. 2 spindle radial dmd.
Borer, Root 2 spindle horiz. dmd.
Borers, New Indiana 15H 2 spdle. horiz. dmd.
Clamp, Taylor, 40 sect. 4 clamps
Clippers, Coe 66" and 72" bd.
Dowel Driver & Gluer, Bell No. 8 dmd
Glue Jointer, Jenkins No. 343A bb. dmd.
Jointers, New Moak 12", bb. dmd.
Lathe, Mattison 57D bb. & motor
Mortiser, Sidney, single spindle pb. bd.
Mortiser, W&M No. 285—6 Spindle horiz. dmd.
Mortiser, Greenlee No. 228 Vert. bd. & motor
Mortiser, W & M No. 288—6 spdle. horiz. dmd.
Moulder, Amer. 8" sq. hds. pb. bd. & motor
Moulder, Yates C88—8" bb. dmd.
Planer, Buss 44" Sgl. bb. dmd.
Planer-Matcher, Yates A1-15"x6" sq. hds. pb. bd.
Planers, Woods No. 450—30" dbl. pb. bd. & motor
Planers, new Crescent 24" bb. dmd.
Redrier, Coe 10 plate 36"x72"
Resaw, Connell & Dengler Circular pd. bd.
Router, Defiance, 2 spindle bb. dmd.
Routers, Carter, floor type Hvy., duty, electric
Sander, Berlin, 31" 3 drum, roll feed bd.
Sander, Mattison No. 134, pb. bd.
Sander, Mattison No. 138—Belt, hand, pb. & motor
Sander, McKnight, Sgl. Drum bb—v-belt drive
Sander, New Jefferson, hand block, bb. dmd.
Sander, Smith 49" 3 drum endless bed, bd. with motors
Sander, Vonnegut, pneumatic bb. dmd.
Sanders, F & E 60" 3 drum roll feed, dmd.
Sanders, Nash No. 25—10 spdle. dmd.
Sanders, Yates-Amer. No. 413—2 drums 48" endless dmd.
Saws, Beach cutoff bb. dmd.
Saws, Powers, gang rip. pb. v-belt & motor
Saws, Buss Tilt table Variety bb. dmd.
Saws, Yates-Amer. No. 8 bb. dmd.
Shaper, Greenlee No. 180—Double bb. dmd and freq.
Shapers, Defiance dbl. spdle bb. dmd.
Shapers, New Moak single spindle, bb. dmd.
Sticker, Sash, Smith single head, pb. bd.
Sticker Sash, Hermance 4 side—plow & boring attach. & motor
Taping machines, Dennis No. 2
Tenon Heads, single & double end.
Veneer Jointer, Jenkins, saw pb. bd.
Woodworker, Crescent jb. bd.
Many other items, send your inquiries.

FOR SALE

Victor Peterzell & Co.

1269 Culver Road — Rochester 9, N. Y.

Band Resaw, 50" Cordesman, 25 HP motor
Knife Grinder, Yates No. 275, motor
Moulder, American No. 1, 6", motor
Planer-Matcher, 14"x6" Woods, b.d.
Radial Saw, 5 HP DeWalt, 3-60-220
Ripsaw, American No. 15 Straight Line, dmd

FOR SALE

Clifton Machinery Co.

1023 W. 6th St. — Cincinnati, Ohio

Saw Dust and Shavings Mill Exhausters and Blowers—Hundreds in stock, sizes to suit any need. Also Air Compressors, Fans, Rotary Blowers, Money Savers—Send Specifications.

All machines rebuilt and fully guaranteed.

FOR SALE

WOODWORKING MACHINERY
W. W. Thayer Company
719 North Hills Drive St. Louis 21, Mo.
Phone MU. 7483

Saw, Porter Hydra Cut, Amer. No. 22, 10" motor, BD.
Sash clamp, Fay & Egan.
Shaper, Double, Advance Machinery Company.

FOR SALE

Glue Wheel, 6'—10' overall diameter, 8 positions, 3'x5' clamping area
Open Belt Horizontal Stroke—Sander 8' or 10'
Both machines for 3 phase, 60 cycle, 440 volt operation.

FALK MILL SUPPLY CO., INC.
18 WARD ST. — ROCHESTER 5, N.Y.

HEAVY DUTY GREENLEE 24" BALL BEARING JOINTER. Practically new. Well suited to work in connection with self feeding attachment.
Also jointers from 12" to 30".
More than 150 machines to select from.

The Osborne & Sexton Machinery Co.
COLUMBUS 16, OHIO

Yates 431, 43" E B Sander
Mereen-Johnson No. 477 Auto. Cutoffs
Wilkins Challoner No. 50 D E Tenoner
Diehl No. 55 SL Ripsaw.
Mattison No. 207 SL Ripsaw.
Hermance No. 50 10" Moulder.

R. K. HASKEW & CO.
CHATTANOOGA, TENN.

Fay & Egan No. 3 Automatic Hollow Chisel Hor. Mortiser; with boring Att. Cap. 18"x18" timbers; 2½" Sq. mortises 10" deep.

C. G. WYATT MACHINERY
24th & Hayes Ave. — Camden 5, N. J.

MODERN SANDER

Good Used Smith 43" 404-B triple drum, endless bed, ball bearing, d-m-d Sander with complete electrical equipment, 3-60-220, immediate shipment.

VICTOR PETERZELL & COMPANY
1269 Culver Rd. — Rochester 9, New York

FOR SALE

S. J. BAILEY & SONS, INC.

Nicholson **Penna.**

Factory fully equipped for edge gluing panels. Lumber dry room and plenty of lumber storage under cover. Hardwood lumber available; labor which worked in this factory at glue work for 18 years available. Factory has reliable water power 8 months each year; also, outside electricity and steam power. Located on R. R. switch.

FOR SALE

S. A. Woods No. 107 Moulder 12", sq. hds. B/D
Billstrom Power Clamp, 29 sections, 4 clamps to a section
American 24" Jointer rd. hd. ball brg., with Herzog Attach.
Fay & Egan No. 404 Dowel Planer, ball brg., M/D

W. D. Matthews Machinery Co.

279 Center Street
Auburn, Maine

Used Chas. E. Francis 31" x 36" Eight Opening Hot Plate Veneer Press; complete with dual motored pump units; automatic pressure gauges; throttle valve; exhaust hood and blower; assorted aluminum cauls. Excellent for sides, doors and tops of TV and radio cabinets. In perfect working order, available for immediate shipment at bargain price.

Address replies to Box 417
c/o WOOD WORKING DIGEST
Wheaton, Ill.

FOR SALE

Large stock new and used machinery. Many late models. Our shop, one of largest in South, equipped with modern rebuilding facilities. Cutterheads and Knives. Write for our list.

BRANYAN & PETERSON, INC.

503 So. Second St. **Memphis, Tennessee**
P. O. Box 2573 **Phone 37-7443**

PLANER, Whitney No. 24, Ball Bearing, 40" Double Cabinet
20 HP & 15 HP Motors
SAW, Workage Radial 1 HP
SHAPER, Yates No. N4 Single Spindle, 5 HP
CLAMPS, Steel Bar, Large Assortment

GLOBE MACHINERY CO.

602 W. Lake Street **Chicago 6, Ill.**
ANdover 3-4185 - 4186

MOULDER, Yates CA3, 4", Belt drive.
MORTISER, Greenlee 227, Direct motor dr.
JOINTER, Wallace 8", M.D.
BEACH, 24' Single Drum Sander, B.D.
SANDER, Yates 431, 43", Belt dr., Endless bed.

WHIPPLE & O'BRIEN

122 Marlborough Rd. **Upper Darby, Pa.**
Boulevard 0814

FOR SALE

2 Doig box nailers, 12 track, complete with motors. Excellent condition.

Worldsbest Industries, Inc.

Phone: Hu. 3-1110 **Cudahy, Wisconsin**

IMMEDIATE DELIVERY

New Delta 20A-30A-40A-50A Ball Bearing Radial Saws
20" Ball Bearing Band Saw
New Millbury Bench Tenoner, M.D.

AAA SAW & TOOL SERVICE AND SUPPLY COMPANY

1401 W. Washington Blvd. **Chicago 7, Ill.**

GUARANTEED
FACTORY REBUILT

LINDERMANS

4 ft., 6 ft., 8 ft., 10 ft.,
12 ft. Sizes
fully motorized
with or without
Bark Edging Saws

MUSKEGON MACHINE CO., INC.
Newburgh, N. Y.

WE MAY HAVE IT

We are the Largest Dealers in Wood Working Machinery in the World. We Sell, Buy and Trade.

Our Rebuilding is Unequaled

• WRITE US •

J. LEE HACKETT CO.
1961 EAST MILWAUKEE AVENUE
DETROIT, MICHIGAN
Appraisers • Liquidators • Rebuilders

DELTA — ATLAS — SAWS — DRILL PRESSES — SHAPERS — JOINTERS — SANDERS — PLANERS

10"-12" Fenlind Swing Saws
Portable Electric Saws, Sander & Drills
36" Automatic B.B. Knife Grinder
12" Crescent R.H. Jointer
New Light Mortiser
Fay & Egan M.D. Planer, 24"
12" New Ball Bearing Tilting Arbor Saw $199.50

AAA SAW & TOOL SERVICE & SUPPLY COMPANY
1401 W. Washington Blvd., Chicago 7, Ill.

FOR SALE

Soft Hardwood Air Dried Dimension

7/8 x 7/8	8 to 14	inches	long	inclusive
5/8 x 1 3/8	8 to 20	"	"	"
3/4 x 1 3/8	8 to 20	"	"	"
3/4 x 1 13/16	8 to 20	"	"	"

Send inquiries to

CHICAGO MILL & LUMBER CO.
BOX 593 HELENA, ARKANSAS

No. 134—2 spindle Whitney shaper—4 H.P. motors, 220 volt, 120 cycles, 3 phase, spindles run 7200 RPM. Condition like new. Dust hoods included.
Frequency Changer set 7½ KW, 220 volt, 120 cycle when direct connected; 180 cycle with V belt connecting drive, 3 phase output.
30" single surface Whitney planer, 4 knife round head, babbit bearing belt drive.

H. T. CUSHMAN MFG. CO.
North Bennington, Vermont

Automatic Shaper, Onsrud WB 85-E, double spindle, complete with Frequency Changer and Air Clamps, slightly used.
Lathe, Mattison 42", ball bearing, motor driven, complete with chuck.
Sander, Smith 3 drum endless bed, motor driven, plain bearings, 42".

VICTOR J. REED
JAMESTOWN, N. Y.

FREQUENCY CHANGERS AND

MOTORS, GENERATORS, TRANSFORMERS

1 — 1500 H.P.
Bought and Sold
New and Rebuilt

ELECTRIC EQUIPMENT CO.
ROCHESTER 1, N. Y.

FOR SALE

Union resin glue spreader model 31-54.
Cutter-Wood 32" knife grinder.
Four Francis hand screw presses 54"x13".

THE WOLMAC COMPANY
816 East Fourth Grand Rapids, Minn.

LIQUIDATION—BOX SHOP

Hand Hole Machine, Woodworker's Tool.

Jointer, Linderman direct motor drive, including rip saw.

Paint Spraying Unit, complete De-Vilbiss particularly suited for box work, practically new.

Presses, 2—Doig, for bottle box separators.

Printer, Connell Dengler two-color.

Setting-Up Machine, Morgan No. 1.

SEND INQUIRIES TO

HERMANCE MACHINE CO.
WILLIAMSPORT, PENNA.

FOR SALE

Merritt Direct Motor Driven Veneer Jointer	$650
Dennis Veneer Taper	350
8-Spindle Universal Vertical Borer	950
Pringle Brodie Motor Driven Variety Lathe	500
New Britain Chain Mortiser	650
Black Bros. 12" B.B. Resilient Roll Glue Spreader	475
Perkins 48" Double Roll Glue Spreader	350
7' Door Clamp	250
Case Clamp	250
12-Sp. Dodds Dovetailer	650
Dowel Sander	250
Onsrud Double Head Auto Shaper	2500

The Marks Woodworking Machinery Co., Inc.
25 Howard Street New York 13, N. Y.

FOR SALE
Two Good Moulders

Mattison 228, 16" and Mattison 229, 8", both running daily on high quality work. Complete with all motors and control for 220 volts, 60 cycle, 3 phase. One set of heads for each.

CARDINAL CO.
Fincastle Bldg., Clay 1608, Louisville 2, Ky.

FOR SALE
BAND SAW FILING AND GRINDING EQUIPMENT
All in very good running condition

One Used Resaw Tensioner with 1½ HP 440 volt motor
One Used Covel Band Resaw Sharpener
One Used Brazing Clamp
One Used Simonds Lap Grinder

Quick Sale Price $825.00—f.o.b. our plant

Oshkosh Wood Products Corp.
Phone: Stanley 60
OSHKOSH, WISCONSIN

FOR SALE

1—Nash No. 10 Sander with shafts and Belting and 5 HP 440 Volt Motor
1—Yates No. 70 Lathe, together with shafts and Belting and 10 HP 440 Volt Motor. Also 220" Heads and 240 Knife Holders.
1—Greenlee 532 Motor Driven Single End Tenoner

David V. Lundberg
1602 Jackson St. Rockford, Ill.

FOR SALE

American Timber Cut-off Saw, 12" cap.
DeWalt 36" Radial Saw. DMD 7½ HP., 3/60/220/440.
Band Saws 36", 30" & 18" BB, DMD & BD.
Whipp Combination Woodworker.
American 12" Sticker

SURPLUS & SALVAGE CO., INC.
JAMESTOWN, N.Y.

Motor Driven
FREQUENCY CHANGERS
IN
STOCK

Sizes: 10 to 60 KW
Outputs: 90-100-120 and 180 cycle
Reliably Rebuilt
1 YEAR GUARANTEE
Attractively Priced
SAVE MONEY when you BUY any ELECTRICAL EQUIPMENT
We actually have one of AMERICA'S LARGEST STOCKS
Send us your Inquiries.

L. J. LAND, INC.
Est. 1910 (39th Year)
Corner Lafayette & Grand Sts.
New York 13, N. Y.
CAnal 6-6976

MACHINERY WANTED

SINGLE MACHINES OR COMPLETE PLANTS—No machine too small or plant too large to interest us. Will pay spot cash. Advise what you have for sale.

J. LEE HACKETT CO.
1961 EAST MILWAUKEE AVENUE
DETROIT, MICHIGAN
Appraisers • Liquidators • Rebuilders

1—MEREEN-JOHNSON NO-195 BAND RIP SAW, Ball Bearing with 20 HP, 220 volt "V" Belt Drive.

MacNEIL MACHINERY COMPANY
1308 W. Main St. Richmond 20, Va.

WANTED

3/4 inch and 5/8 inch
PLYWOOD
In The Following Sizes
15" x 18" 18" x 24"
16" x 22" 16" x 20"
Sound 1 Side - Reject back

ALSO

12" x 17" one-eighth-inch regular MASONITE

NATIONAL STORE FIXTURE CO., INC.
Baltimore 23, Maryland

WANTED

FIXTURE SALESMAN: Must know how to lay out plans for customers, make drawings and specifications and designs for all types of store fixtures. We have one of the most modern and up to date plants on the Eastern Coast. Good territory and pay.

Apply Box No. 415
c/o WOOD WORKING DIGEST
Wheaton, Illinois

WANTED
PRODUCTION EXPERT

We desire the services for about a month of a Production Expert to assist us in increasing production, reducing costs, redesigning furniture, and to introduce new lines.
Must be a man thoroughly familiar with woodworking machinery, upholstery and design, and who has had supervisory experience in improving methods. We now produce about a million dollars worth of chrome plated tables and chairs, upholstered and plain wood. Will pay up to $1,000 per month, plus all expenses, to the right man.

Address replies to

Industrias Metalicas de Palmira S.A.,
Palmira, Colombia

WANTED

One good used automatic circular crosscut saw sharpening machine about 72" saw capacity, similar or equivalent to No. 772 Hanchett Sharpener.

ABER BOX AND BASKET FACTORY
JACKSONVILLE, TEXAS

SUPERINTENDENT FOR WOODWORKING FACTORY

Must be practical woodworker with ability to supervise production in a New York factory employing fifty men. Product consists of fine furniture, interior woodwork, etc. Advise fully regarding qualifications and salary desired.

Address replies to Box 419
c/o WOOD WORKING DIGEST
WHEATON, ILLINOIS

COMPRESSOR CARE

Abrasive foreign material entering an air compressor through the intake line can cause excessive wear on the valve and valve seat which might ultimately result in valve breakage. Only in extreme emergencies should a compressor be operated for even a short length of time without the use of an efficient air filter. Filters should be serviced faithfully and at regular intervals in accordance with instructions and local operating conditions. Without a filter, foreign materials collect on the valves and valve seats. These materials act as an abrasive, or rubbing compound, between the valves and valve seats if the compressor is operated in this condition.

When a filter is not used, large particles might be drawn into the compressor and become wedged between the valve and the valve seat causing valve breakage due to an uneven bearing surface. At the same time these particles may nick and mar the valve seats In this event, these parts either have to be replaced or resurfaced before they can be used again. Particular emphasis is placed on the fact that an efficient air filter should always be used when the compressor is in operation and that this filter should be serviced at regular intervals in accordance with the instructions, modified by local conditions.

Courtesy of Joy Manufacturing Company, Pittsburgh, Pa.

"WHY NOT GET YOUR MIND OFF A HOPE CHEST, MADAM - WE HAVE SOME BEAUTIFUL ROCKING CHAIRS!"

Bark of an Idaho White Pine tree is thin and dark gray in color. Needles are approximately four inches long.

"A word to the wise; Use both your eyes."

"If it's for Woodworking . . . We Have It"

BAND SAWS: 20" Crescent Ball Br. M.D. New
32" Crescent Bab. Br. Motor Dr.
Crescent 36" Ball Br. Motor Dr.
Oliver 36", B.B., 7½ h.p. built in
New 14" Walker Turner B.B. Band Saw, $105.00
Tannewitz 36" B.B. Motor Drive

BORING MACHINES: Root Vert. Sg. B.B. 2 h.p. on spl.
Dennis Vert. Sgl. Universal
Mosk 2 spl. Hor. Radial M.D.
American 2 spl. Hor. Radial M.D.
Andrews Vert. 42" 5 spindle
Andrews Vert. 30" 4-6 spindle
Greenlee No. 386, 12 ft. 10 spl.

BOX MAKING MACHINERY: Gramme Cigar Box Nailer
Doig 2 tr. Cigar Box Nailer
Doig Close Back Nailing Mch. 3-5-6 tr.
Doig Open Back Nailing Mch. 14-15-21 tr.
Doig 12 tr. O. B. Cleater
Gramme 3 tr. Cigar Box Nailer
Box Board Matchers-Hall & Brown-Luther
Tidey Box Makers Rip Saw
Mereen Johnson B. M. Rip Saw
Beach B. M. Carriage Cut Off Saw

CLAMPING MACHINERY: Handy No. 100 Bed Clamp
Handy No. 116 Clamp Carrier, 12 ft.
Lancaster Pneumatic Chair Clamp
500 Spring Clamps No. 1-2-3½ price

CUT OFF SAWS: Oliver No. 94-D St. Line. 95% New.
Hall & Brown No. 134 C. O. & Dado Automatic
Holmes No. 102 Foot Pedal C.O. Saw
Porter Hydramatic C. O. Saw
DeWalt 5 Hp., 3 ph.
Greenlee No. 453 Auto. Railway C. O. 7½" Cap.
Greenlee No. 456 Auto. Railway C. O. 12" Cap.

DOWEL MACHINERY:
Hawker No. 2 Dowel Machine, rebuilt
Fay & Egan No. 406 Dowel Machine

DADO MACHINES: American No. 11 C.O. & Dado
Fay & Egan No. 5 C.O. and Dado
Hall & Brown No. 134 Auto. C.O. & Dado

ELECTRIC MOULDER:
Mattison No. 229 8" with 15 hp. T & B 7½ hp. Side and 7½ hp. on feed, 220 volt, 60 cy. 3 ph.

JOINTERS:
Yates No. 199 12" Rd. H. M.D.
American 16" No. 1 Incline Bed
Fay & Egan 24" Rd. Hd. No. 116
8" Speed Marvel Ball Br. M.D. New
LATHES: Mattison No. 57-B Automatic

MOULDERS:
Fay & Egan No. 184 12", 4 side
Hermance 10" 4 side, Bab. Br.
American 10" 4-side, No. 20
Hermance 8", 4-side Bab. Br.
American No. 505 10" 4 side Bab. Br.
Colladay 5" 4 side

MORTISERS: Beach Vert. H.C. Motor on spl. comp.
New Britain No. 7 Chain Comp. table
New Britain No. 4 Chain Comp. with H.C. attach.
Colladay H.C., motor built in
American Hor., H.C.

KNIFE GRINDERS—AUTO.:
American No. 100 St. Wheel Auto.
Oliver No. 485 Oil Stone Grinder

PLANERS AND MATCHERS:
Fay & Egan No. 3331, 5"x6", 4 side
Berlin No. 44, 15"x6", 4 side
Fay & Egan No. 275, 16"x8", 4 side
Lehman 24"x6", 3 side
Fay & Egan Sgl. Spl. Vert.

PLANERS—DOUBLE: Whitney No. 24 36"x7" Double Planer with 4 knife Rd. Hds., clamp type bearings. Db. sectional infeed rolls and chip breaker, M.D. 2-25 h.p., 3 phase motors coupled to heads.
Berlin 30"x12" Dbl. with 20 and 10 h.p., Motors $950
Yates No. 177 30"x12" dbl. with 4 knife round heads, clamp bearings, divided roll and chip breaker, motor dr. by three motors and control

PLANERS—SINGLE:
Yates Am. B-44 24"x8" Ball Br. M.D.
Powermatic 12"x4" Ball Br. (New)
American No. 1, 20" x 6".
American No. 444 30"x7" Sgl.
American No. 4½ 27"x7"
Parks 12"x4" Motor Dr.
Oliver No. 299, 24"x8", B.B., M.D.
Oliver No. 339 18"x6" B.B., M.D.
Crescent P-18, 18"x6", w. Grinder
Crescent No. 224 24"x6"
Crescent No. 118 18"x6"
Powermatic New 16"x6" Ball Br., $485.00

RADIAL SAWS: Dewalt 5 h.p., 3 ph., Type V-3
DeWalt 5 hp., 3 ph., type G.E.
Multiplex ½ to 5 h.p. New
Walker Turner 2 h.p. 1 ph.

RIP SAWS: Yates G-2 Ball Br. St. Line Motor Dr.
Falls No. 103 St. Line Chain Feed Ball Br.
American No. 2 Hand Feed
Tide Box Makers Rip Hand Feed
Mereen Johnson Box Makers Rip
Mattison No. 205 St. Line M.D.

ROUTERS:
Kelley Elect. Stair Router
Cincinnati Elect. Stair Router
Duro Router, Floor Type

STICKERS:
American 4", 3 side, Top, bottom, outside heads

SANDERS: Smith No. 401D 43" 3 dr. enlless bed 4 motors
Berlin 49" 3 dr. Royal Invincible Roll Feed
Berlin 30" 3 dr. roll
Wysong & Miles No. 171 Belt Sander, M.D.
Yates American No. 47-J Comb. 15" disc & 6" belt
Boice Crane No. 2006 oscil. Spindle Sander
Beach Mfg. 48" W.F. Disc Sander
American No. 15 24" sgl. dr. hand feed
Fay & Co. 42" 3 Dr. 4 motors, vee dr.
Mattison No. 115 Variety (Bargain)

SASH COPERS: American Foot Power
Electric Bench Type

SHAPERS:
American No. 1 Sgl. Spl. Ball Br. M.D.
Shimer No. 4 Sgl. Br., M.D.
Fay & Egan No. 265 Db. Spl.
Oliver Sgl. Spl. No. 287 Ball Brg. Mtr. Dr. 95% New

SAW TABLES: Crescent No. 1 Combination
Yates Amer. No. 0 Motor on arbor 3 ph.
Greenlee No. 481 Variety
Crescent No. 4 Dbl. Arbor Universal
Crescent No. 5 Dbl. Arbor Universal
Oliver No. 60 Dbl. Arbor Universal
Atlas-Walker Turner T.A., New

TENONERS: Smith Sgl. End Copes & C.O. Saw
Smith Sgl. End 2 copes
Hall & Brown No. 55 Sgl. with copes
Harris Floor Type Sgl. End Ball Br. with 2 copes

UNIVERSAL WOODWORKERS: Sidney No. 31—3 units, 5 motors
Sidney Jr. 8" Jointer, 20" Band Saw
Sidney No. 30
Crescent No. 58

ERVIN MACHINERY CO., INC.
124-26-28 Boulevard of Allies Pittsburgh, Pennsylvania

AN EASY SOLUTION
FOR YOUR MACHINERY PROBLEMS

FADER REBUILT MACHINERY

BAND SAWS
Superior 36", steel spoked, motor driven
Superior 42", ballbearing, motor driven
American 36", ballbearing, motor driven

BORERS
Greenlee No. 369, 5' Vert. Multi-Spdl., D.M.D.
Greenlee No. 369, 4' Vert. Multi-Spdl., M.D.
Valley City, 2-spdl., adj. radial, motor driven
American 2-spdl., adj., radial, motor driven
American Sgl. Spdl, horizontal, motor driven
Bell 3-spdl., adj., horizontal, M.D. Power Feed
Superior 2 Spindle Adjustable Radial Ballbearing, direct motor driven
Wysong & Miles No. 283B, Sgl. Spdl. Vert., B.B. D.M.D. (Like New)

CARVING MACHINES
Balstrom 24 Spindle, Direct motor driven, bBall-bearing.

CLAMPS—ASSEMBLY
Bell Chair Assembly, Air Operated (like new)
Bell 4-way Hi-Jaw, Air Operated.
Bell 4-way Frame & Chair Back, Air Operated.
Bell No. 95, Revolving Case Clamp, Air Operated.
Handy No. 227, 4-way Box Clamp, foot operated.
Handy Mitre Clamp. 20"x26" maximum

CLAMP CARRIERS
Handy 18-sec., 5 ft. wide, 38" clamps per sec.

DOVETAILERS
Dodds 12 Spindle, motor driven, spiral gears
Dodds 25 Spindle, motor driven, spiral gears.

DOWEL MACHINERY
Bell No. 4-A capacity ¼"-2", M.D., B.B.
Hawker No. 2, capacity ¼"-2", M.D., B.B.
Nash No. 4 Dowel Rod Sander, motor driven

JOINTERS
Fay & Egan No. 217, Continuous Chain Feed
Jenkins No. 3CD, Continuous Chain Feed, B.B., D.M.D.
Superior 16", Round Head, B.B., M.D.
American 12", Round Head, motor driven
Superior 12", Round Head, motor driven

JIG SAWS
American, self-contained
Oliver No. 173 Self-contained, D.M.D.
Superior, Self-contained, motor driven

MORTISERS
Greenlee No. 228 Vert., Hollow Chisel, M.D.

MOULDERS
Hermance No. 50 10" 4-side, motor driven
American No. 1-6" 4-side motor driven
Mattison No. 229, 10", 4-side, D.M.D., B.B., Elec. Houston, 10", 4-side

PLANERS
Whitney No. 24, 30" Double Cabinet, B.B. D.M.D.
Superior 28" Single, Motor Driven
Buss No. 4, 30", sgl. cabinet, D.M.D., B.B.
L. Power 24"x 6" Planer-Matcher, motor driven
Yates No. 156, 26", single, motor driven
American No. 112, 30" single, motor driven

ROUTERS
Ekstrom-Carlson No. 126 Hi-Speed, B.B., D.M.D.
Porter No. 500, B.B., Direct motor driven
Porter No. 502, 2-spdl., B.B., D.M.D.

SANDERS
43" H.B. Smith, 3-Drum Endless Bed, D.M.D.
Indiana No. 7 Hand Block Belt B.B., d. m. d.
American 31", 2-drum, Roll Feed, M.D
Curtis 8' Automatic Stroke, motor driven
American No. 2, 24" Disc and Oscillating Spdl.
American No. 5 Drum Sander, D.M.D.
Nash No. 4 Round Stock and Dowel Sander

SHAPERS
Onsrud 72" Automatic, multiple stations, B.B. direct motor driven, with frequency changer.
Porter, Sgl. Spdl., high speed, B.B., M.D.

SAWS—CUT-OFF
Racine Floor Type—motor driven
Fay & Egan Double End, Motor Driven.

SAWS—RIP
American No. 15 Chain Feed, motor driven
American No. 40 Chain Feed, Ballbearing, D.M.D.
Fay & Egan No. 264 Self Feed, D.M.D.
Defiance No. 21-D Chain Feed—motor driven
Mattison No. 207 Chain Feed, Ballbearing, D.M.D.

SAWS—VARIETY
Pettingell, Tilt Arbor, Roller Table, M.D.
Tannewitz, Tilting Table, motor driven

TENONERS
McKnight No. 71C Chair Back Tenoner, M.D.
Towsley Single End, Tenon heads, lower cope, cut off saw, motor driven

VENEER MACHINERY
Black 36"x72" Electric Press
Francis 36"x72" Hydraulic Press
Dennis Taping Machine, motor driven
Dennis Continuous Feed Veneer Jointer, mtr. driven
Jenkins-Falls Veneer Jointer, B.B., motor driven

MISCELLANEOUS
Bell. No. 13 Dovetail Gluer, steam heated. direct Motor Drive
Bell No. 13 Dovetail Gluer, steam heated.
Black Bros. 12" Edge Glue Spreader, motor driven.
Zoller Power Mitre Chopper, motor driven
Fay & Egan No. 253, Automatic Knife Grinder, 30"
Sturtevant 36" B.B. Exhaust Blower M.D.

FADER WOODWORKING EQUIPMENT QUALITY

A. L. FADER & COMPANY
605 W. Washington Blvd., Chicago 6, Ill., Phone STate 2-7634

QUALITY~ THAT YOU CAN RELY UPON!

HACKETT WOODWORKING MACHINERY

NEW MACHINES - IMMEDIATE DELIVERY

Hand Jointers **Mitre Saws** **Self-Feed Rip Saw**
32-in. Circular Resaw **2-Spdl. Horiz. Borer** **24-in. Single Planer**
Multiplex Saws and Delta Machines

BAND SAWS
Tannewitz—Greenlee—American—Crescent—Moak 36" BB M.D.
Yates-American 36" BB M.D.
Crescent 36-in. tilting frame
American 42" V-belt M.D.
Tannewitz 42" M.D.

BAND RIP AND RESAWS
Yates No. 312 44" chain-feed hand rip
Newman No. 117 circular resaw BB M.D.
McDonough 62" Vertical Band Resaw

BORING MACHINES
Greenlee No. 363 6-spindle universal M.D.
New Wysong & Miles sgle. spdle., vert. d.m.d.
Greenlee No. 356 single-spdle. vert., d.m.d.
Greenlee 36-in. No. 369 vert. gang, 8-spd., m.d.
Andrew 4-ft. vert. gang, 4 spindles.
Root "B-M" 16-spindle, cluster hd., motor-dr.
Valley City 2-spindle radial.

BLOWERS AND FANS
American No. 80E with 40-h.p. coupled motor.
G.R. No. 50 ball-bearing, 40-h.p. motor
Sturtevant No. 25-30-35 Mill Exhausters

CLAMPS—GLUE ROOM EQUIPMENT
Taylor 6-ft. 12-sec. wheel type clamp carrier.
Black Bros. 10" 50-sec. power feed
Black Bros. No. 2 2D 26-in. dbl. resin sprdr.
Greenlee No. 599 frame and furniture clamp

FILING ROOM MACHINERY
Black Diamond band saw filer.
Hanchett hand saw brazer.
Rogers 38" cup wheel auto. knife grinder
Hanchett No. 60R lap gr. b.d. max. cap. 8" wide
Black Diamond No. 5 circular saw filer, M.D.
Covel-Hanchett No. 325 thin knife grinder

JIG SAWS
Smith—Colladay—Jones Superior M.D.

JOINTERS
Moak 16" rnd. hd. motor on arbor
Porter, American, Oliver, Sidney, Fay & Egan from 8" to 30" wide—several have feeding attachments—tell us what you need
Yates and Diehl cont. feed glue jointers, M.D.
Yates No. 213 continuous feed, V-belt, m.d.
Mattison-Greenlee D-616 continuous-feed.

LATHES
Imperial autom. shaping lathe, M.D.
Mattison No. 55-F 30-in. auto. shaping, M.D.
Whitney 50-in. back knife gage lathe
Mattison No. 214 copying lathe
50" Mattison hexagon T-slot heads with carriers and knives 2-11/16" bore

MORTISERS
Whitney No. 67 Oscillatig bit, dir. m.d.
Greenlee No. 226 Hollow Chisel, belt drive
New Britain Nos. 2 and 7 chain, motor-drive

MOULDERS
Rowley-Hermance 6-in., coupled motor drive.
Smith 8-in. drop bed, V-belt, m.d.

PLANERS
Yates No. 156 20-in. rd. hd., m.d.
Porter No. 401 24" round head, BB D.M.D.
Whitney 44-in. single, motor-drive
Berlin No. 177 30-in. b.b. belt dr.
Oliver No. 61, 24-in. single Motor Dr.
Buss 26", 30" & 36", single B.B. M.D.

ROUTERS
Carter Type TR—Porter No. 600—Ekstrom-Carlson No. 24—Onsrud Type A4RR 2-spindle radial—M.D.

SHAPERS
Oliver No. 285, single BB M.D.
Whitney No. 165 s.s., motor on arbor
Whitney No. 182, spl., D. M.D., 36x40" table
Whitney No. 134 double-spindle, dir. M.D.
Amer. No. 20 dbl.-spdl. dir. M.D. freq. changer
Sidney double b-b short belted M.D.
Advance double-spindle, ball-bearing, mtr. dr.
American dbl. spindle, belted m.d.

SANDERS
Porter-Cable 15-in. disc. motor-drive
Fay & Egan 30" 3-drum roll-feed.
Yates No. 401 43" 3-drum roll feed.
Duplex moulding sander
Buss-2-spindle vertical, oscillating belt drive
Wysong & Miles No. 164 universal belt, m.d.
Yates No. 431, 43-in., 3-drum end-bed, m.d.
Yates No. 421, 49-in. 6-drum with motors

MITRE SAWS
Darra-James tilt-arbor, motor-drive
Dodds tilt-table, motor on arbor
Crescent No. 10 roller tilt-table, direct m.d.

CUT-OFF SAWS
Jenkins No. 105A 90-in. x 48-in. double chain-feed, with copes, direct m.d.
Egan cabinet type, double, belt-drive
Multiplex No. 40A radial arm, 1½ h.p.
Fay & Egan No. 306 butting saw
Greenlee No. 451 auto. cut-off and dado
Buss double cabinet type, motor-drive
Fay & Egan No. 281 Chain-Feed, dbl., B.D., max. 6'6"
Porter 43 SLA straight line D.M.D.

RIP SAWS
Yates G77 chain-feed, D.M.D.
Smith No. 335A self-feed, belt or motor-drive.
American No. 1 self-feed, motor-on-arbor.
Yates G-2 chain-feed; motor-drive
Mattison No. 207 chain-feed, motor-drive

TENONERS
Greenlee No. 534, Single end with cut-off, no copes, dir. m.d.
Smith No. 225CE single-end with copes.
Houston single-end with copes, rolling table
Wilkin-Challener No. 70 90x48 in. double end, electric

This is only a partial list — Send or call your inquiries

1965 E. Milwaukee **Detroit 11, Michigan**
Telephone TRinity 2-6442

BANDSAWS

Tannewitz 36" DMD 32" under guide
36" American Tannewitz, Crescent Oliver
27" Crescent Band Saw
20" Crescent, M.D.
Yates, V40, 48" B.B. Angle Bandsaw
Northfield BB & DMD, 20" to 36"

BORERS

Andrews Multiple vertical
Horizontal—2 Spindles—Various makes

DOVETAILERS

Dodds, 10, 15, 20 spindle

JOINTERS

American 12" Wedge Bed, BB
American 16" Wedge Bed, BB
Smith DMD 24" BB with Smith Finger Feed & Motor

MORTISERS

Wysong & Miles 5 Sp. Horizontal, B.D.
New Britain No. 3
New Britain No. 7

MOULDERS

Mattison No. 229 DMD 8" w/hopper

PLANERS

Whitney No. 32 40" DMD Double

RIPSAWS

Fay & Egan 30" dbl. No. 140 4-knife Rd. hd.
New Belsaw 7½ HP Multiple Model 840
24" Colloday L. Powers, HB Smith, Crescent Sidney
G-77 Yates BB DMD, Motor Feed

SANDERS

10" Peerless Horizontal BB
10" Porter Cable B 3 MD
Peerless Horizontal 14" - 20" - 26"
43" 2-Drum Endless bed BB MD No. 399 Fay & Egan
W & M Underbelt DMD
Wysong-Miles Hand Block Belt, DMD
Yates American Underbelt DMD
Porter Cable 15" disc DMD
Porter Cable Wet BG 8 MD
Peerless 14" vertical, belt, BB

SAWS

American No. 10 Model 3 DMD
Beach Tilt arbor DMD
DeWalt radial saw 3 and 5 HP
Fay & Egan BB Tilt Top
Tidey Saw Tbl. VBD with Rolling Carriage
Walker Turner, Wallace, Yates Amer., Tannewitz, etc. in medium sizes
Whitney 177, DMD, tilt, Arbor

SHAPERS

L. Powers Single BB—M.D.
Union Single Spindle, BB, MMBD
Defiance Double Spindle, DMD with tilting & Sliding heads
Whitney, No. 102 Automatic Shaper, m.d.
Yates N1 DMD, w/Freq.

TENONERS

McKeage New Sgl. end T & B copes 3 mtrs.
Fay & Egan, No. 70 Single End

MISCELLANEOUS

American dowel machine BB
Covel-Hanchett Band resaw grinder MD
Metal working lathes, presses & power shears
Morgan Box Board matcher
DeWalt Timber Cutter, 10 H.P.
Porter 43C Str. Line Cut Off Saw, L. or R.
Chicago Riveting Machines, Style No. 90

NEW MACHINERY

Door Clamp, Williamsport Amer.
12" Tilt arbor, Darro-James
Combination 20th Century Cresson Morris
Taylor Clamp Carrier, 60 Section, 6' 6"
H & A swingsaws No. 5—No. 25—No. 55
American single borers DMD
American Single Shapers BB MM S-30
McCartney High Speed BB Single Shaper
Model No. 1000 Single Spindle Shapers
Grinders—from ¼ HP to 5 HP bench and floor models DMD
Buffers 1-2-3-5 HP DMD
Drill Presses No. 15, 18 Buffalo bench and floor models
Electric drills, Hand Power Saws
DeWalt Radial Saws, ½ HP to 7½ HP
Northfield No. 1 tilt top saw tables
Northfield No. 4 tilt arbor saw tables
8" to 16" BB Jointers
20" to 36" BB fully guarded bandsaws
24" BB planers, single MD
Metal working lathes, presses & power shears and brakes.
Walker Turner Tools—all types

Endless canvas belts, large variety of lengths and widths, also sand belts for Skilsaw, Porter Cable and Vonnegut brush sanders. Accessories and supplies, tremendous lot both new and used. Also band and resaw blades.

WE PAY CASH FOR ENTIRE PLANTS OR INDIVIDUAL MACHINES

American Machinery & Motor Co., Inc.

22 HOWARD ST., NEW YORK 13, N. Y.

CONSIDER GOOD USED MACHINERY

BORERS:
Yates-American No. U-31 Single Spindle Vert., B.B.
Root Style "GMB" Sgl. Spdl. Vertical, B.B., M.D.
Greenlee No. 356 Vert. Spdle. Borer, B.B., M.D.
Wysong & Miles No. 283-B Vert. Single Spindle.
Andrew 42" Vertical 6 spindles, power feed
Andrew 72" Horizontal, Four or more Spindles, M.D.
Andrew 60" Vertical 8 spindles, power feed
Towsley Two-Spindle Radial Horizontal, M.D.
Valley-City 2-spindle Radial Horiz. m.d.

CLAMPS:
Bell Air Operated Cabinet Clamps, plates 24"x48".
Taylor 6½ ft. 40-section Style No. 80, Power Driven
Taylor 20 section, 6½' cap. four clamps per section

DOVETAILERS:
Wysong & Miles No. 290 Automatic Production, M.D.
Dodds 10, 15, 20, 25 Spindle, spiral gears, M.D.

DOWEL MACHINES:
Hawker No. 5 motor driven, 5" capacity.

FREQUENCY CHANGERS:
General Electric 5-10-15-25-33 KW, D.M.D.

GLUE SPREADERS:
Union 60-inch No. 31 Dbl. Roll P.F. Resin, M.D.

GLUE JOINTERS:
Jenkins No. 3-CD Cont. Chain-feed, B.B., M.D.
Jenkins No. 3-C Cont. Chain-feed, B.B., Belted M.D.

HAND JOINTERS:
American 16" Ball bearing, motor driven
Yates-American 24-in. D.M.D., B.B., Jointer, Rd. Hd.
Crescent 12" Round Head, ballbearing, direct motor

JOINTER FEEDERS, AUTOMATIC
Porter 30" Jointer, with Herzog Feeder, m.d.
Smith 24" and 36" Automatic Facing Pl., B.B., M.D.

LATHES:
Mattison No. 57-D Automatic, Ballbearing, M.D.

MORTISERS:
Crescent Vertical Hollow Chisel, ¾" cap., b.b., M.D.
New Britain No. 2 Chain Saw, M.D.
Greenlee No. 228 Hollow Chisel Single Spindle, M.D.
Wysong & Miles No. 284 Vertical, direct motor

MOULDERS:
10" Woods No. 132-M Ballbearing, all Electric
Vonnegut 8" four-side, ballbearing, direct motor

PLANERS:
American 24" No. 1½ Single, ballbearing, motor
Fay & Egan 24" No. 156 Single, ballbearing, motor
36" Whitney No. 29 Single Planer, Motor Driven
Buss 30-in. Mod. No. 88 Double B.B., D.M.D.
Whitney 30" No. 24 Double, Ballbearing, Motor Driven
Whitney 40" No. 33 Heavy Duty Dble Surf. B.B., M.D.

ROUTERS:
Onsrud Single and Double Radial Arm Routers.
Onsrud W-265 Ballbearing, motor driven.

BELT SANDERS:
Curtis Mod. 8-V Semi-Auto. Panel Belt Sander, 10 ft.
Mattison No. 137 Hand Block Moulding, M.D.
Wysong & Miles No. 270 Horiz. Osc. Edge, M.D.
Yates-American No. 427 Hand Block, Motor Driven.
Yates-American No. 430 Hand Block, self-cont. Mtr.
Mattison No. 115 Variety, with 5 HP built-in motor.
Peerless 9" Vertical Ballbearing, Motor Driven.

DRUM SANDERS:
Solem 43" No. 370 Two Drum Endless Bed, M.D.
American-Columbia 36" No. 2 Roll Fd., Moor Dr.
Solem 73" No. 430 Triple Drum Endless Bed, b.b., m.d.
Yates 30" Model No. 431 3-drum Endless Bed, M.D.
Yates (Berlin) 73" No. 401 Triple Drum, Roll Fd.
Yates (Berlin) Six-Drum, 31" capacity, m.d.

MISCELLANEOUS SANDERS:
Nash No. 65, 56" Automatic Turning Sander, 4 spdls.
Nash No. 25, 48-in. Auto. Turn., 10 spdl., B.B., M.D.
Nash No. 25, 72-in. Auto. Turn., 10 spdl., B.B., M.D.
Ekstrom, Carlson No. 18 Pneu. Drum Sander, M.D.
Oliver 15" Single Disc Sander, ½ HP motor.
Vonnegut "SEM" Double End Spindle Sander, M.D.

BAND SAWS:
American 36" No. B-36 ballbearing, motor driven
Tannewitz 42-in. Type RHE Band Saw, B.B., M.D.
Tannewitz 42-in. Type "R" Band Saw, B.B., D.M.D.
Jones-Superior 42-in. No. 55 Band Saw, V-belt M.D.
Crescent 40-in. tilting frame (angle) Band Saw w/mtr.
Yates-Amer. 36-in. Type V-36 Band Saw, B.B., D.M.D

CUT-OFF SAWS:
Bell No. 12 Double Mitre and Cutoff, b.b., M.D.
DeWalt Model "GS" Radial Arm Saw, ½ H.P.
DeWalt Radial Arm, 3 HP and 7½ HP motor.
Heston & Anderson Bench Type No. 5, Motor Driven Conveyor Table
Oliver No. 94 Straight Line, Motor Driven
Porter A-43 Straight Line Cut-off, M.D. with conveyor table
Porter 5' Ceiling Type Swing, motor on arbor.
Yates-American Model "G-44" Straight Line, ball-bearing, m.d.
Yates-Amer. G-35 swg. cut-off, 5 hp b.b. mtr-on-arbor
Fay & Egan 50-A swg. Cut-off, 5 hp b.b. m-on-arbor
Jones-Superior Ceiling Swing, Motor-on-Arbor
Mereen-Johnson No. 477 Automatic Undercut Cutoff Saw, motor driven

RIP SAWS:
Mattison No. 205 Chain Feed, b.b. M.D. (2)
Smith No. 335-A Self-Feed, V-belt motor drive
Yates-American No. G-67 Chain Fd. Straight Line Rip and Edging Saw, B.B., M.D.
Yates G-2 Chain Feed, 10 HP motor-on-arbor.

VARIETY SAWS:
Moak No. 16-A Tilt Table, motor-on-arbor
Crescent No. 9 Tilt Table, motor-on-arbor
Tannewitz Type "B" Double Arbor, belt drive
Sidney (Famous) Tilting Table, Motor-on-arbor.
Yates-American No. 1 Tilt Table, B.B., M. on A.
Yates-Amer. No. 8 Comb. Saw and Dado Machine M.D.
Darra-James and Boice-Crane Tilting Arbor

SHAPERS:
Porter No. 103 Single Spindle, ballbearing, M.D.
Porter No. 201 Dbl. Spdle. B.B. with 2 Vert. Mtrs.
Whitney No. 351 Double Spindle, ballbearing, M.D.
Whitney No. 250 Double Spindle, 7½ HP Motors.
Greenlee No. 180 Dbl. Spdl. B.B. Motors on Spdles.
Whitney No. 134, 156, Dble. Spdle. B.B., Motors.
Advance No. 122 Double Spindle. Ballbearing. M.D.
Amer. No. 30 Dble. Spdle., B.B., 5 HP mtrs. at rear
Smith Double Spindle. Ballbearing, Motors-on-spindles.
Fay & Egan No. 452 Dble. Spdle., b.b. M.D.
Onsrud W-200 Single Spdle., High Spd. B.B., M.D.

TENONERS:
American Automatic Blind Slat Tenoner
Greenlee No. 545 Double End, 78"x44", All Electric
Smith Single End, Copes, Cut-off Saw, Motor Driven
Wilkin-Challoner Dbl. End. B.B., M.D. Cap. 66"x26".
Fay & Egan No. 2 Single End, with Copes, Motor.

VENEER EQUIPMENT:
Capital 200 inch Veneer Clipper, power feed, M.D.
Diehl No. 89 Tapeless Veneer Splicers
H.P.M. Hydraulic Veneer Press, 72"x30" with Pump
Francis Hyd. Veneer Press, Cap. 72"x30", w/MD Pump.
Merritt 84"x54" Veneer Redrier, 8-10-12 plates, M.D.
Merritt 100"x52" Redrier, 10 plates, M.D.
Dennis Cont. Chain-feed Veneer Jointer, 6-knife Head
Sheridan 50" Veneer Cutter

MISCELLANEOUS
Buffalo 60" ballbearing motor driven Exhaust Fan
Gardner-Denver 10"x12" Air Compressor 60 HP mtr.
Wardwell Model K-5 Saw Filer, m.d.
Food Machinery Co. Type CBM 20-track Cheese Box Nailer m.d.
Mummert-Dixon No. 475 Grinder, motor driven, with Knife Attachment
Clarage 75" No. 33 Single Exhaust Fan, 75 H.P.

ALL OFFERINGS **ARE SUBJECT TO PRIOR SALE**
(We are always in the market for Complete Plants).
THE ABOVE IS A PARTIAL LIST—SEND US YOUR INQUIRIES—WRITE, WIRE OR PHONE

GREEN MACHINERY COMPANY
23 NORTH JEFFERSON STREET CHICAGO 6, ILLINOIS PHONE FRANKLIN 2-8940

SUTTON GUARANTEED

BORERS

Greenlee No. 356 motor-driven single-spindle vertical borer.
Single-spindle Fay & Egan No. 1 vertical borer.
Multiple-spindle vertical Fay & Egan borer.
Andrew vertical gang borer.
Greenlee No. 386 vertical gang borer.
Greenlee No. 369 vertical gang borer.
American No. 2½ single-spindle horizontal boring machine.

CLAMPS

Handy No. 103 frame clamp.
Taylor revolving clamp carrier, 40-sections.
High Point drawer clamp.

DOVETAILERS

One 12-spindle Dodds dovetailer.
Pair 12-spindle Dodds dovetailers: Each equipped with Teague automatic feed for doing fronts, backs and sides. With motors.
Pair 25-spindle Dodds dovetailers with Teague automatic feed.

FANS

60-in. diameter ball-bearing cooling fan.
60-in. double ball-bearing shaving exhaust fan with 25-h.p. motor.

GLUE SPREADERS

New Union 54-in. No. 31 double rubber roll resin glue spreader.
Practically new Black Bros. 12-in. motor-dr. edge glue spreader.
Francis 72-in. and 84-in. No. 290 plate glue spreader.
New Union conveyorized edge glue spreader for resin glue.

GRINDING ROOM EQUIPMENT

American No. 9 automatic knife grinder.

JOINTERS

Yates-American 12-in. No. 1 direct motor-driven ball-bearing round-head
Diehl No. 60 direct motor-driven glue jointer.
Yates No. 213 direct motor-driven glue jointer.

LATHES

Yates 42-in. No. 74 automatic lathe ball-bearing.
Mattison 42-in. No. 57-D with motor.

MORTISERS

Wysong & Miles No. 288 multiple-spindle mortiser.
Wysong & Miles No. 286 hinge seat mortiser.
Greenlee single-spindle vertical mortiser.

MOULDERS

6" Vonnegut Electric Moulder
10" Yates-American C99 Electric Moulder
Yates-American 4" C69 Electric Moulder
4" Vonnegut Electric Moulder

SINGLE PLANERS

New Crescent P-24 direct motor-drive round-head with grinder.
Oliver Strait-o-plane.
30" Buss Direct Motor Drive ball-bearing single Planer with grinder
30" American No. 444

DOUBLE PLANERS

Yates 30-in. No. 177 double direct motor-driven planer.
Yates-American 30-in. B-24 double direct motor-driven fast-feed heavy-duty planer.
Whitney 36-in. No. 24 direct motor-driven, ball-bearing.

BAND SAWS

36" J. A. Fay & Co. Band Scroll Saw

SANDERS

Yates-American 61-in. 8-23 direct motor driven ball-bearing roll feed.
Yates-American 43-in. No. 433 direct motor-driven endless-bed.
Yates-American 43-in. No. 431 3-drum direct m.d. endess-bed.
Mattison No. 124 automatic stroke sander.
American No. 7 oscillating spindle sander.
Fay & Egan direct motor-driven ball-bearing endless-bed.
Pearson waterfall sander.
Nash No. 10 automatic turning sander.
McKnight No. 44 Chair Back Drum Sanders

RESAWS

42-in. J. A. Fay & Egan No. 58 combination band scroll and resaw.
American No. 4 Band Resaw

CUT-OFF SAWS

Porter C-43 straight-line direct motor-drive.
Newman swing cut-off saw.
Beach ball-bearing roller table double cut-off saw.
Wilkin-Challoner motor-driven ball-bearing chain-feed double cut-off saw.
Yates-American No. 2 direct motor-driven roller table double cut-off saw.

RIP SAWS

Mattison No. 207 direct motor-driven ball-bearing glue joint rip saw.
Yates-American direct motor-driven ball-bearing chain feed rip saw.
Fay & Egan No. 504 direct motor-driven ball-bearing self-feed rip saw.
American No. 15 ball-bearing chain-feed rip saw.
New Mereen-Johnson No. 441 gang rip saw.
Diehl No. 55, direct motor drive, b.b., Glue Joint Ripsaw

VARIETY SAWS

Crescent direct motor-drive ball-bearing tilting table.
Beach direct motor-drive ball-bearing tilting-table No. 5A.

SHAPERS

Whitney double-spindle ball-bearing, built-in mtrs.
New Crescent Type S-2 single-spindle with 2-h.p. motor.
Whitney No. 393 automatic single-spindle shaper.

TENONERS

Jenkins No. 95 electric double-end tenoner.
Greenlee 545 double-end tenoner.
Wilkin-Challoner No. 70 double-end tenoner.
Amerian single-end tenoner.

VENEER MACHINERY

76" Francis Hydraulic Veneer Clipper
Francis laboratory hot press.
Dennis veneer taping machine, motor-driven, variable-feed.
Merritt 12-plate veneer re-drier, motor-driven, size 53x100-in.
Francis 84x36 Hydraulic Veneer Press

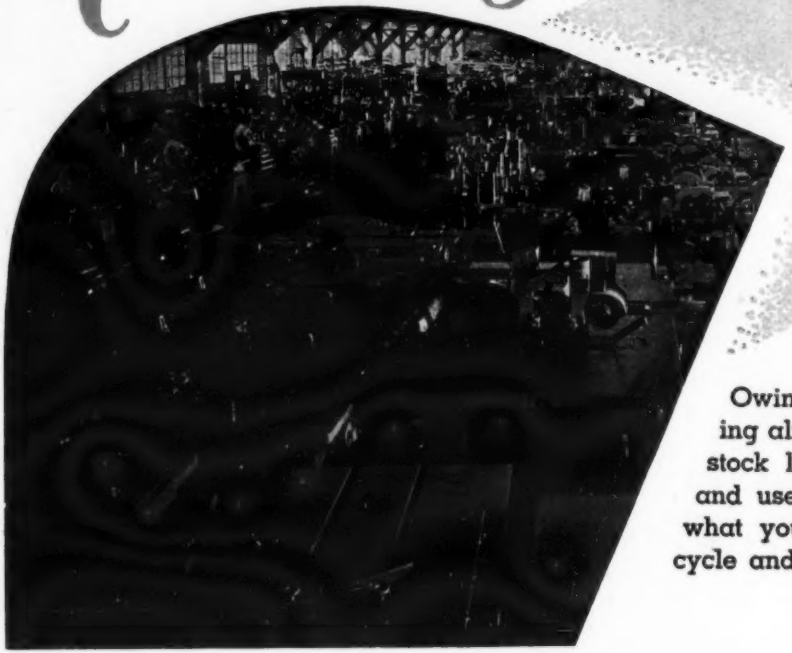
MISCELLANEOUS

Gardner-Rix 6x6-in. twin cylinder air compressor with 15-h.p. motor.
Mitts & Merrill hog with 50-h.p. motor, practically new.

SUTTON WOODWORKING MACHINE CO.

Sedgefield Inn **Phone 2-4186** **Greensboro, N. C.**

Rebuilding



AT ITS BEST!

At Left, a partial view of our warehouse looking toward the rear, showing only about one-third of our stock.

Owing to our very large stock changing almost daily, we are omitting our stock list. We have about 350 new and used machines. Tell us exactly what you want, and advise phase, cycle and voltage of your current.

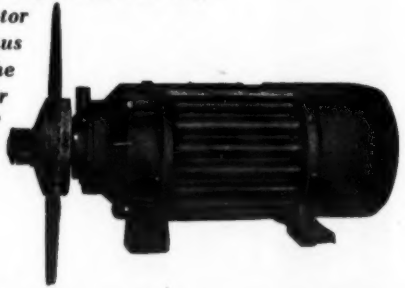
Here at Osborne & Sexton, you will find an

anteed and must be satisfactory, as our users

Here at Osborne & Sexton, you will find an organization skilled in the rebuilding of all types of woodworking equipment. Every machine as it enters the plant is carefully checked and inspected by men whose knowledge and experience make them familiar with every detail . . . just as doctors make a thorough diagnosis before a remedy is prescribed. All parts are then removed . . . in fact the machine is completely stripped to the frame. Every box is rebabbitted . . . every spindle ground accurately to size . . . drums, cylinders, heads, and pulleys are balanced . . . knives are ground and balanced . . . every shaft or stud showing signs of wear is replaced.

Modern production and rebuilding methods employed at O & S provide further assurance that the equipment which we literally "remanufacture and assemble" will meet your exacting demands. Every machine rebuilt or sold is guaranteed and must be satisfactory, as our users are the judges. Whether your machines require rebuilding, or you need machinery to help you meet the competitive situations which are ahead, be sure to contact Osborne & Sexton in Columbus. You will find a friendly organization . . . capable and willing to work with you on your engineering and production problems. Write us today.

MOTORS Totally enclosed, dust proof, fan cooled, ball bearing saw arbor motors, 3600 r.p.m. From 1 h.p. to 15 h.p. Measures only 3¼" from center of motor shaft to flatted top. Thus facilitating the use of the smallest possible diameter saw blade. (2, 3 & 5 HP motors available for quick shipment.)



A large stock of Standard Frame 3 phase motors and controls from 1 HP to 125 HP.

ENGINEERS AND RE-MANUFACTURER

The Osborne and Sexton MACHINERY CO.
COLUMBUS 16, OHIO

MODERNIZED & REBUILT

BORERS: 2 Spindle Radial, 1-10", 1-18" Cap., Motorized

CLAMPS: Handy, High Jaw, Drawer, 64" capacity
Handy, Case, 48" capacity

CLAMP CARRIERS: Black 12-section, 7' 6" cap., high jaw clamps
Taylor 30-section, 6' 6" cap., air operated
Billstrom 39-section, 8'6" capacity

FACERS: Herzog 20" Feeder, m.d.; b.b., 4-knife round head jointer, direct coupled drive
Herzog 24" Feeder, motor driven, ball bearing, power heist; 4-knife round head jointer, direct coupled drive

JOINTERS: American 12", Ball Bearing, Direct Motor Driven
American 16" ball bearing, V belt drive

LATHES: Mattison No. 57-D Auto. Turning, M.D.
Smith B-42 B.B. Automatic Turn. Lathe, M.D.

PLANERS: American 26" Single, Cabinet, Ball Bearing, coupled drive
Whitney 30", Cabinet, plain bear. V-belt m.d.

REDRIER: Merritt 36"x72", 6-plate, motor driven

SANDERS: Wysong & Miles No. 274 Combination Horiz. & Vert. Edge Belt, motor driven
Ecco No. 111 Edge Belt, B.B. direct mtr. dr.

SAWS: Tannewitz Type RH, 42" Band Saw, direct motor driven
Englesfield Tilting Arbor, direct motor drive
Oliver No. 270-D Tilting Arbor, direct mtr. dr.
Porter C-43, Cut-off, direct motor driven
Wallace Radial Arm Saw, direct motor driven
Hermance No. 36 Straight Line Rip Saw, direct coupled drive, belted feed

SHAPERS: Sidney Single Spindle, b.b., mtrzd.
Buss 2-spindle, ball bearing, motorized
Onsrud W226 Buck Shaper, ball bear d.m.d.
Onsrud W122, Automatic Shaper, B.B. direct motor driven, with 15 KW Frequency Changer

MISCELLANEOUS: Bar Clamps, Eccentric Clamps, Wood Hand Screw Clamps, Quick Acting Clamps, Dry Kiln Trucks, Transfer Dollies

Gaynes **ENGINEERING CO.**
1711-17 W. Lake St., Chicago 12, Ill.
Phone: HAymarket 1-3061

Guaranteed Used Machinery

Band Resaw, Fisher 60" Box Factory type rolls, 24" high, open 6", B.D.
Band Saw, Tannewitz type G-1 36" with 32" under guide B.B. with 15 HP motor
Band Saw, 20" Crescent M.D., New
Band Saw, 36" H. & B. No. 120 B.D.
Band Saw, 36" Y&F with motor
Band Saw, New Northfield 20" ball bearing
Boring Machine, American 3 spindle, Horizontal
Boring Machine, Newton 2 spindle horizontal
Box Board Matcher, Hall & Brown No. 176 M.D.
Chucking Machine, Smith, 3 HP motor
Door clamp, J.A. Fay & Co. 8x4"
Glue Spreader, 60" Francis Dbl.
Grinder, Knife, Auto. 30" Fay & Egan No. 253 Disk Wheel
Jointer, 24" Crescent, Belt Drive
Jointer 12" Hall & Brown with motor
Knife Grinder, auto Rogers style F-32"
Lathe, Auto. Berlin with heads, B.D.
Lathe, Propeller Fahlin 10' motor drive with wood patterns and jigs
Lathe, Waymouth, Automatic
Mortiser, Crescent Hollow Chisel, New
Moulder 9"—4 side Fay & Egan with motor
Nailing Machines, Doig 13 and 17 track, closed back
Planer, New Powermatic 12x4" M.D.
Planer, single 16x6" Powermatic, New
Planer, single 24x6 Northfield No. 5, New
Planer, single Crescent No. P-24—24 x 8 ball bearing, direct motor drive.
Planer, 12x4" Boice Crane No. 1002, New
Radial Saw, Comet Clipper, 3 HP, New
Radial Saws, Multiplex 30A and 40A new.
Rip Saw, Chain Feed Mattison No. 205 M.D.
Router, Onsrud No. W-240D—5 HP late type
Router & Borer, Radial Arm, Onsrud No. A1
Router, Yates-American No. U-90
Router, Duro floor model, M.D.
Router, Onsrud No. A1R Radial Arm
Sander, Crescent 18" Disc, New
Sander, Belt, Auto., Curtis 6'
Sander, Nash auto. belt for Bowling Pins
Sander, Belt 8' Schimmel Reid Semi Auto.
New Delta 10" tilt table Saws
Saw, 12" tilt arbor, Dara-James New
Saw Table, American No. 20, Double Arbor
Saw Table, Crescent No. 3, double arbor
Saw, Swing, H. & A. No. 5—10", New
Saw, Swing, H. & A. No. 25—14", New
Saw, Swing, H. & A. No. 55—16", New
Saw, Variety, Hall & Brown No. 131 with motor
Saw, Variety Sidney tilt table
Shaper, American No. 20 with 2—5 HP motors
Tenoner, Hall & Brown No. 51 with copes
Tenoner, Yerkes & Finan Copes and Cut-off
Tenoner, Fay & Egan No. 505 with one cope M.D.

Send us your inquiries for machines not listed

McDONALD MACHINERY CO.
1531-35 N. Broadway Ph. Central 9360 St. Louis 6, Mo.

Lend An Ear —

To These Real Values

Greenlee No. 370 Multiple Horizontal Borer, 65 in. capacity
Andrews 5 ft. Multiple Vertical Borer
Jenkins Type R Dowel Machine, motor drive
Dodds 12 Spindle Dovetailer
Diehl No. 60 Glue Jointer, ballbearing, motor drive
Francis 24 in. Double Roll Glue Spreader, rubber rolls, m.d.
Yates-American C-89 - 6 in. Electric Moulder
Mattison No. 229 - 6 in. Electric Moulder
Vonnegut 6 in. Electric Moulder, hopper feed
Yates-American C-88 - 8 in. Electric Moulder
Vonnegut 12 in. Electric Moulder
Woods No. 76-M - 30 in. Heavy Duty Single Planer, 30 H.P. direct motor drive
American No. 666 - 36 in. Double Cabinet Planer, d.m.d.
Buss No. 4 - 30 in. Double Cabinet Planer, d.m.d.
Jones-Superior No. 46 Self Contained Jig Saw, 2 H.P.
Mattison No. 207 Chain Feed Ripsaw, 10 H.P. V drive
Yates-American G-77 Chain Feed Ripsaw, motor driven
Diehl No. 75 Chain Feed Ripsaw, motor driven
Smith 60 in. 2 Drum Ballbearing Endless Bed Sander
Mereen-Johnson No. 440 Gang Cleat Saw, ballbearing
Bates Spur Feed Ripsaw, ballbearing, 20 H.P. V-drive
Yates-American N-1 Single Spindle Shaper, ballbearing., d.m.d.

The above items are a few selections from one of the largest woodworking machinery inventories in the United States. Write for quotations on any items of machinery you may need.

LAKESHORE MACHINERY CO.

2200 N. 11th St. **Dept. H** **Milwaukee 5, Wis.**

REBUILT AND USED MACHINES

BAND SAWS
American B-36, 36"
Tannewitz R-42", D.M.D.
Jones-Superior No. 155, 42", M.D.
BORERS
Root "GM" Vertical Single Sp.
American No. 1, 2-Sp. Radial Horiz.
Towsley 2-Sp. Radial Horiz.
Fay & Egan No. 312, 42" Vert. Multiple
CLAMPS
Lancaster No. 400B Air Frame Clamp
Lancaster No. 500 Air End Clamp
CLAMP CARRIERS
Taylor 6½", 30-Section
Taylor 10", 60-Section, No. 80
DOVETAILER
Dodds 12-Spindle, spiral gear
FANS
Sturtevant 50" Single
GLUERS
Bell 72" Plate Edge Gluer
Francis 8" Gluing Machine
JOINTERS
6", 8", 12", 16", 20" sizes.
Porter No. 300 CM 24 D.M.D.
LATHES
Mattison No. 57-D 42" automatic
Reed 16" Turning Lathe, 16" swing
MORTISERS
New Britian No. 2 Chain Saw
Crescent Vert. M.D. Hollow Chisel
Loeffler No. 610 Hi-Speed
Wysong & Miles No. 181, 6-Spindle
American No. 10 Sash Mortiser & Relisher
PLANERS
24", 30" and 36" Single
Whitney No. 24, 36" Double D.M.D.
ROUTERS
Porter No. 622 Electric
Onsrud H-113 Air
SANDERS
Yates No. 431, 43" Endless Bed, 3-Dr.
American No. 2, 43" Roll Feed, 3-Drum
Curtis No. 11 Semi-Auto. Belt Sander
Nash No. 65 Automatic Turning
Wysong & Miles 16" Disc Sander
SAWS—CUT-OFF
Porter, Floor Type, with table
Y-A C-44 Floor Type, with Table
SAWS—CHAIN FEED
Mattison No. 205, Ball Berg., D.M.D.
American No. 40 Motor Drive
SAWS—SELF-FEED
Hermance No. 31
American No. 1—Greenlee No. 426
SAW TABLES
Root and American
American Dbl. Revol. Arbor
American No. 7½ Comb. & Dado
Tannewitz SJ Tilting Arbor
SHAPERS
Hall & Brown No. 212 Single
American No. 1 Single Reversible
TENONERS
Fay & Egan Single End
Millbury Bench Type
American & Smith
MOULDERS
Woods 2½" Electric No. 807M4
American 6" and 8" 4-Side
American No. 1, 4" Single Head

B. M. ROOT CO., YORK, PA.

REBUILT & USED MACHINES

BAND SAWS
Crescent 32-in. belt-drive
Greenlee 36-in. model 410, ball brg. mtr. dr.
BORERS
Supreme horiz. 2-sp. radial mtr. dr. new
McKnight No. 25 side rail fitting mach. b. d.
Fay & Egan No. 312 4 sp. vertical b.d.
Pratt & Whitney 16-sp. Univ. vertical, m.d.
Towsley 2 sp. radial
CARVERS
Minnesota 12 sp. m.d.
Porter sing. sp. ball brg. m.d.
CUT-OFF & DADO SAWS
Delta miter chop saw, ball brg. m.d.
Yates-American G-44 cut-off ball brg. m.d.
Porter straight-line cut-off, ball brg. m.d.
Fay & Egan No. 700 straight-line cut-off ball brg. m.d.
Towsley hanging type swing saw, m.d.
JOINTERS
Colladay 16" jointer, b.d.
Porter 12-in. ball brg. m.d.
American 16-in. with Billstrom feeder, b.d.
Oliver 16-in. Jointer ball brg. b.d.
Sidney 16-in. Jointer ball brg. b.d.
LATHES
Mattison No. 55-C, 30-in. ball brg. m.d. Turning
Mattison No. 57-B, 42-in. b.d.
Yates No. 74 automatic Turning, ball brg. b.d.
MORTISER
Powermatic Chain, m.d. new
American No. 20 Hollow-Chisel, b.d.
Greenlee No. 228, m.d.
MOULDERS & STICKERS
American No. 35, 9-in. ball brg. elec.
Mattison No. 262 6-in. ball brg. elec.
Mattison No. 276 6-in. elec.
Yates-American No. C-75, 6 & 8-in. ball brg., elec.
American No. 1, 6-in. 4-sided, b.d.
Smith No. 141A sticker, 3 sided, with plowing & boring attachment
PLANERS
Whitney No. 32, 30-in. ball brg. m.d. single
Fay & Egan No. 156, 36-in. ball brg. m.d.
American 24-in. b.d.
Oliver 24-in. single, b.d.
ROUTERS
Onsrud 113-E elec. freq. changer
Yates Amer. No. W-900 m.d.
Porter No. 666, m.d.
SANDER
Schipper sp. ball brg. b.d.
Peerless 12-in. vert. Box m.d.
Wysong & Miles No. 303 Comb. disc & sp. ball brg. m.d. new
Yates No. 431 43-in. 3 drum endless bed m.d.
American No. 11, 14-in. horiz. Box, b.d.
Peerless 20-in. Box b.d.
SAWS
Moak No. 16A ball brg. tilt-top
Tannewitz No. F ball brg. tilt top
Fay & Egan No. 402 revol. arbor sliding top, b.d.
Sidney tilt-top, b.d.
Tidey Saw rolling carriage, ball brg.

WRITE FOR DESCRIPTIVE CIRCULAR — THIS IS ONLY A PARTIAL LIST

SUPREME WOODWORKING MACHINERY COMPANY
50-52 HOWARD STREET NEW YORK 13, N.Y.

HERE ARE A FEW OF Earle Hart's

BIG VALUES

IN USED AND REBUILT WOODWORKING MACHINERY

* Indicates Ball-bearing and Direct Motor Driven

BORERS—Horizontal & Vertical
Towsley No. 3—2 Spl. Horiz. Radial Borer
Greenlee No. 368—36" Mult. Horiz. Borer.
Andrew 48" & 72" Mult. Horiz. Borer.
* Wysong & Miles No. 283-B Vert. Sgl. Spl. Borer.
* Greenlee No. 369—48" Vert. Mult. Borer.
Andrew 72" Vertical Gang Borer.
Nash chair seat angular borer.

CLAMPING MACHINERY
Taylor 40 Section 78" Revolving Clamp Carrier.
NEW Union Hand and Air Operated Revolving Case Clamps.
Handy No. 447 Air Operated, 2-Way End Clamp.

GLUE MIXERS & SPREADERS
Francis M-7 (75 gallons) Veg. Glue Mixer.
Union 36" and 60" Dbl. Roll Resin Glue Spreaders.
Phenolite 52" Dbl. Roll Resin Glue Spreader.

JOINTERS
* Crescent 12" hand jointer.
Moak 16" Hand Jointer, DMD.
* Yates-American No. 213 Glue Jointer.
* Jenkins No. 3-CD Glue Jointer.

LATHES
Mattison No. 57-D Auto. Turning Lathe, BB.

MORTISERS
* NEW Crescent Vert. Hollow Chisel Mortiser.
* Wysong & Miles automatic hydraulic hollow chisel mortiser.
Greenlee No. 228 Auto. Hollow Chisel Mortiser.
New Britain No. 2 Chain Saw Mortiser.

MOULDERS
* Vonnegut 8" Electric Moulder.
* Yates-American Type C-99—10" Electric Moulder.
* Woods No. 132-M—10" Electric Moulder.
Woods No. 132—10" BB Belt Dr. Moulder.

PLANERS—Facing
* Oliver 36" Straight-O-Plane.
* Porter No. 700—36" Surfacemaster.
* Porter No. 300—30" Facing Planer.

PLANERS
* Whitney No. 105—24" Single Planer.
Fay & Egan No. 156 24" single planer, BB.
* Whitney No. 20—36" Single Planer.
Whitney BB 30" Double Planer.
* Whitney No. 24—40" Double Planer.
* Whitney No. 33—40" Heavy Duty Dbl. Planer.
Berlin No. 177-30" heavy duty double planer.

PLANERS & MATCHERS
* Woods No. 412-M—15" Planer and Matcher.

ROUTERS
Onsrud W-240 heavy duty electric router.
Yates-American U-9 heavy duty electric router.
Onsrud W-265 Electric Router.
* Onsrud Type A4D Single Arm Radial Router.

DRUM SANDERS
Yates No. 431—31"-43"-49" 3-Drum Endless Bed Sanders, motorized.
* Solem S-3-M—73" 3-Drum Endless Bed Sander.
Berlin 31" Six Drum Sander.

SANDERS—Belt & Miscellaneous
* Curtis 8-B Semi-Auto. Belt Sander.
Mattison No. 124 Auto. Stroke Sander.
* Wysong & Miles No. 275 Hand Block Sander.
* Ekstrom-Carlson No. 18 Pneumatic drum Sander.
* Oliver 15" Single Disc Sander.
Nash No. 10 & No. 25 Auto. Spindle Sanders.
* Oakley Model H drawer sander.

SAWS—Band Scroll & Resaws
* NEW Crescent 20" Band Scroll Saws.
* American B-36" band saw.
* Tannewitz Type RHE-42" Band Scroll Saw.
Mershon 54" Vert. Band Resaw.

SAWS—Cut-Off
* Diehl Hydraulic Straight Line Cut-Off Saw.
* Fay & Egan No. 700 Straight Line Cut-Off Saw.
Mereen-Johnson No. 477 Auto. Cut-Off Saw.
* Yates-American No. 5 Swing Saw.
* DeWalt Radial Arm Saws—large selection.
* Jenkins No. 105-A Dbl. Cut-Off and Mitre Saws.

SAWS—Rip
* Mattison No. 207 Straight Line Ripsaw.
* Yates-American Type G-67 Straight Line Ripsaw.
* Fay & Egan No. 386 Chain Feed Ripsaw
* Yates G-2 Chain Feed Ripsaw, Mtzd.
Smith No. 335 Self-Feed Ripsaw.
Sinker-Davis No. 8 Self-Feed Ripsaw, BB.

VARIETY SAWS
NEW Delta Tilting Arbor Variety Saw.
* Yates-American No. 1 Tilt Table Variety Saw.
* Moak No. 16-A Tilt Table Variety Saw.
Baker Dbl. Arbor Variety Saw, BB.

SHAPERS
NEW Crescent No. S-2 Single Spindle Shaper.
Onsrud W-200 Single Spindle Shaper, BMD.
Porter No. 103 Single Spindle Shaper, BMD.
Porter No. 201 Double Spindle Shaper, BMD.
* Whitney No. 250 Double Spindle Shaper.
* Whitney No. 134 Double Spindle Shaper.
* Greenlee No. 180 Double Spindle Shaper.

TENONERS
H. B. Smith Single End Tenoner
Fay & Egan No. 2 Single End Tenoner.
Wilkin-Challoner No. 50 Dbl. End Tenoner, BB.

VENEER EQUIPMENT
Francis 30x72" Hydraulic Veneer Press.
Merritt 84x54—8—10—12 Plate Redriers.
Plycor (Fritz) Tapeless Splicer.
Large quantity of 30 and 36" "I" Beams.

MISCELLANEOUS MACHINES
NEW Hanchett No. 133 Auto. Band Resaw Sharpener
Hanchett No. 928 Auto. Circular Saw Sharpener.
Wysong & Miles No. 290 Auto, Dovetailer.
Dodds 10—12—20—25 Spindle Dovetailers.
Loeffler Horiz. Mult., Spindle Groover.
Bell No. 50 Rod Dowel Machine.
Hawker No. 2 Rod Dowel Machine.
Whitney 26" Wood Scraper with Grinder.
Food Machinery Co. 20 Track Cheese Box Nailer.

This is only a partial list. If the machine you want is not shown, write us.

STANDARD of COMPARISON
THE "HART" LINE

Earle Hart WOODWORKING MACHINE COMPANY
565 WEST WASHINGTON BOULEVARD CHICAGO 6, ILL. RAndolph 6-4970

• • SCOTCH PRICES • •

(Denotes Better Buys)

Band resaw, twin, Mershon 54".
Borer, vert. dbl. column, Andrew No. 75, ball b., au om. 60", 10 h.p., 850 rpm. mtr.
Blower, Garden City 35", ball bearing
Chucking machine, McKnight, foot-feed
Clamp, 2-way, Handy No. 35.
Clamp, door, Am., 8'x4'.
Dowel Cutter and Pointer, Bell No. 3.
Dowel Gluer and Driver, Bell No. 8, mtr.
Dowel Machine, Hawker No. 2, ball bearing.
Dowel Machine, Tannewitz.
End Matcher, Sherman Style B.
Glue Jointer, ball b., Yates-Am. No. 213, 3 motors.
Glue Jointer, ball b., Linderman, mtrs.
Hand-Hole machine, Woodworker's, ball bearing.
Jointer, 30", Clement, 2-kn. round head.
Jointer, Clement 30", Billstrom feeder.
Jointer, incline bed, Newman No. 60, 16", 5 h.p. motor on cylinder.
Lathe, autom., Imperial 31", 10 h.p., ball b.
Lock corner cutter, double end, B&M
Mortiser, chain-saw, New Britain No. 3.
Moulder, elec., Mattison No. 262, 6", ball b.
Moulder, 4-side, Hall & Brown, 8", mtr.
Moulder, 4-s., Smith, 6", ball b., mtr.
Nailer-Cleater, Doig, 60", open-back, 16-tr.
Nailer, 10-track, Doig, closed-back.
Nailer-cleater, Morgan, 18-track, closed-back
Planers, sgl., 12", 16" and 20".
Planer & Matcher, F. & E. No. 415, 16"x6", 35 h.p. motor.
Planer & Matcher, 4-s. Fay 24"x6", sg. hds.
Planer & Matcher, 3-side, Indiana, 26"x8".
Planer, dbl., Whitney No. 24, 30"x7", 4-kn. rd. hds., 15 and 10 h.p. coupled motors.
Resaw, Circular, Am. 30".
Ripsaw, self-feed, Sinker-Davis, ball b., mtr.
Ripsaw, st.-line Indiana, Type 6, 2 mtrs.
Ripsaw, chain-fd., Diehl No. 55, two mtrs.
Sander, 3-dr., Berlin 30", 4 motors.
Sander, 3-dr., Berlin 37", 4-motors.
Sander, 2-dr. Solem No. 370, 37", e.b., mtr.
Sander, 2-dr., Fay, 24", roll-feel.
Sander, 2-drum, e.b. Yates No. 413, 31", motors.
Sander, horiz., flat belt B. & M., 20", ball b., mtr.
Saw, tilting table, Smith No. 341-A, revolving double arbor.
Shaper, autom., Whitney, freq.-changer.
Shaper, 2-spdl., Buss ball b., two 5 h.p. vert. belted motors.
Sticker, Williamsport, pl. & bor. attachment.
Sticker, one-side, American No. 1.
Strapping Machine, Doig.
Surfacer, dbl., Am. No. 49, 30"x12", 35 h.p. motor.
Veneer Press, Francis, 103"x25", 5 sects., 10 screws.

SUNDRY OTHER MACHINES IN STOCK.

• • EDGAR G. BICKLER • •

6444-52 Conway Ave., Mt. Washington, Cincinnati 30, Ohio

Telephone: BEechmont 7337

SECURE RELIABLE INFORMATION ON DEPENDABLE MACHINES

Yates C-88, 8" BB Electric Moulder
Woods No. 808, 4" and Hermance No. 50, 7" Electric Moulders
Wilkin Challoner 78x34 BB Belt Drive and Hayes plain bearing Belt Drive. D.E. Tenoners with motors
Hayes 96"x40" plain bearing Belt Drive. Double End Tenoner with 15 HP motor.
Jenkins No. 96 Ball Bearing Belt Drive Double End Tenoner.
Curtis 10 ft. BB, DMD Stroke Sander
Greenlee No. 110, 30" BB Single Planer
Greenlee No. 110, 36" Single Planer
Fischer 40" Vertical Band Resaw.
Mattison No. 207 & Diehl No. 55 Chain Feed BB DMD Rip Saws
American No. 36 BB MD Chain Feed Rip Saw
Yates G-2 MD Rip Saw.
American BB DMD Tilting Table Saw.
Mattison No. 115 Variety Sander
Mattison No. 172 Edge Sander
Merritt 76" Belt Drive Veneer Clipper

O'LEARY & FLYNN

Room 1806 — **666 N. Lake Shore Drive** — **Chicago 11, Illinois**

WOOD GLUE ANNOUNCED

An improved Wood-Tite glue, a liquid, synthetic woodworking adhesive is announced by the Midland Glue Products Company, Inc., 1478-88 Madison Ave., Detroit 7, Mich.

This glue can be used cold and requires no mixing or special preparation. It has excellent storage stability and is especially suited for edge or joint gluing. It sets in 20 minutes and dries in a few hours.

Wood-Tite glue will operate continuously in automatic glue-spreaders without foaming; and will remain fluid when stored in temperatures as low as 34°F. The shear strength has been greatly increased on this new glue and the resultant joint is said to be permanent and water-resistant.

No fillers, extenders, or adulterants are used in Wood-Tite glue; and it is priced economically and gives excellent coverage.

The Company invites inquiries from potential users and distributors.

MODERN MACHINERY—BARGAIN PRICES!

Dodds Motor Driven 12-Spindle Dovetailer, spiral gears.

(4) Practically new Bell Air Clamps, jaws 4" x 60".

(3) Minnesota 24-spindle motor driven multiple spindle carvers.

Diehl No. 55 DMD Strt. Line Ripsaw.

Yates-American C79—8" Two Head Electric Moulder.

Yates-American S7 Direct Motor Driven Ball Bearing Hand Lever Stroke Sander.

American No. 444—30" Motor Driven Ball Bearing Single Cabinet Planer, sec. rolls, sec. chip. electric knife grinder.

American No. 40 1MD Ball Bearing Chain Feed Ripsaw.

Hermance No. 300GS DMD BB Gang Ripsaw.

Ekstrom-Carlson No. 236 Mtr. Drive Hi-Speed Router.

20" Motor Driven (Peerless Type) Horizontal Belt Sanders, plain bearing, vee belt motor driven.

Mereen-Johnson No. 477 Mtr. Dr. BB Automatic Cut Off Saw.

Palmer 16-section clamp carrier, 6-ft.

Greenlee No. 495 Motor Driven Tilting Arbor Variety Saw, 5 hp on arbor.

Greenlee No. 212M Motor Driven 4-Spindle Horizontal Hollow Chisel Mortiser.

American B-36—36" MD BB Band Saws.

Onsrud W-123 DMD Automatic Shaper with frequency changer.

Whitney & Yates Mtr. Dr. BB Double Spindle Shapers.

Jenkins No. 3CD DMD BB Cont. Feed Glue Jointer.

E. B. Hayes 78" Plain Brg. Dbl. End Tenoner, belted motor drive.

American No. 1 DMD BB Tilt. Table Variety Saws.

GUSTAFSON & SCOTT MFG. CO.

1637 N. LOWELL AVE. **CHICAGO 39, ILLINOIS**

LIQUIDATION SALE

Sash & Door Factory – Immediate Delivery – Plant Must Be Vacated

Single Spindle and Two Spindle Borers
Newman Door Clamp
Corner Machines
Grooving Machines
Post Mortisers and Hollow Chisel Mortiser
24" Pony Planer
Yates No. 283—44" Vertical Band Resaw
Carter Router
Yates No. 401 — 55" Roll Feed 3 Drum Sander
36" Band Saw
Cut-off Saws, swing type
Cut-off Saw, radial type
Variety Saws
Spur Feed Rip Saws
Sash Stickers
Single Spindle and Two Spindle Shapers
Single End Tenoner
Wood Worker: 30" Band Saw, 12" Jointer, Shaper

Miscellaneous: Auto. Saw Grinder, 40" Double Blower, Corliss Engine, Factory Trucks, Knives, Cutters, Small Tools.

WRITE ***PHONE***

GAYNES ENGINEERING COMPANY

1711-17 W. LAKE ST. — CHICAGO 12, ILL. — HAYMARKET 1-3061

PRODUCTS INDEX

Compiled for quick reference and for your convenience, this handy index of products shows the pages on which you will find the items advertised in this issue. When writing to advertisers, it will be appreciated if you will mention WOOD WORKING DIGEST.

Abrasive Renewing Compound, 138, 167
Abrasives, 8, 27, 103, 185
Adhesives, 11, 14-15, 23, 25, 101, 140, 157, 164
Air Compressors, 55
Air Control Devices, 55

Bits, 48, 112-113, 159, 165
Blowers, 177
Bolt Driver, 185
Boring Machine, 47, 72

Carving Machine, 73
Chair Machines, 53
Clamps, 41, 89, 123, 161, 175, 181
Clamps, air, 55
Clamps, bar, 89, 123, 161, 175, 181
Clamps, "C", 89, 123, 161, 175, 181
Clamps, sink frame, 41
Clamps, toggle, 89, 108, 123, 161, 175, 181
Clamps, Veneer, 34, 161
Collars, shaper, 56, 172
Cutter Heads, 7, 16-17, 38-39, 61, 92, 181
Cutters, 112-113, 182
Cylinders, air, 55

Dimension Stock, 139, 141
Dowels, 182
Drill Presses, 18-19, 148
Dry Kiln Equipment, 28-29, 107
Dry Kilns, 28-29, 104, 107
Dust Control Equipment, 90, 160

Enamel, synthetic, 98

Factory Trucks, 173, 176, 179, 185
Fasteners, 21, 30, 151, 156, 158
Fastening Devices, Inside Back Cover
Files, 8
Finishes, 98

Glue, casein, 23, 25
Glue, resinous, 14-15, 23, 101, 140
Glue, resorcinal, 11
Glue Guns, 62
Glue Mixers, 143
Glue Pots, 173, 175
Glue Spreader, 62, 143
Grinders, knife, 67, 70, Back Cover

Hardboard, 2
Humidifiers, 145

Instruction, 71

Jointers, 1, 18-19, 79, 81, 148, 162, Back Cover

Kiln Drying, 46,
Knives, 7, 12, 16-17, 38-39, 61, 83, 91, 159, 185, 216
Knives, moulder, 7, 12, 16-17, 38-39, 61, 83, 91, 185, 216
Knives, planer, 7, 12, 16-17, 38-39, 61, 83, 91, 185, 216
Knives, shaper, 7, 12, 16-17, 38-39, 61, 83, 91, 185, 216

Lacquer, 98
Lathes, 174, Back Cover
Lumber, 131, 132, 142
Lumber Drying, 46
Lumber Press, 124
Lumber Stackers, 28-29

Matchers, 38-39, 64
Miter Cutters, 178

Moisture Registers, 88, 104, 109, 171, 175
Mortise Chains, 173, 175, 183
Mortisers, 162
Moulders, 10, 74, 92, 184

Nailing Machines, 147

Packaging Materials, 118
Paints, 98
Planers, 1, 9, 10, 31, 57, 64, 81
Planers, portable electric, 24
Plywood, 120, 128, 137, 139, 141, 142
Plywood moulded, 106, 134
Plywood Presses, 124, 130, 143
Polishing Machine, 54, 81
Preservatives, 11
Profilers, 73

Resaws, band, 173, 180
Routers, 153, 154, 175

Saddle Seat Machine, 53
Sanders, belt, 20, 81
Sanders, contour, 36, 69
Sanders, drum, 82, 168
Sanders, drum, endless bed, 168
Sanders, portable electric, 6, 13, 69, 87, 95, 97, 110
Sash Pinners, Inside Back Cover
Saw Blades, band, 63
Saw Blades, carbide, 11, 211, Front Cover
Saw Blades, circular, 11, 172, 178, 211, Front Cover
Saw Gauges, 91
Saw Guides, 152, 180
Saw Sharpeners, 90, 169
Saws, band, 18-19, 26, 81, 173
Saws, cut-off, 4, 18-19, 42, 74, 215, Back Cover
Saws, miter, 18-19
Saws, portable electric, 117
Saws, radial arm, 18-19, 32-33, 114, 170
Saws, rip, 22, 38-39, 74
Saws, variety, 114, 213
Saws, tilting arbor, 18-19
Screws, cap, set, socket & machine, wood, 21, 30, 151, 156, 158
Shapers, 84, 162, 187
Slides, table, 155
Stains, 98
Stapling Equipment, Inside Back Cover
Surfacers, 3, 9

Tac Rags, 176
Tackers, Inside Back Cover
Tenoners, 179

Valves, air, 55
Varnish, 98
Veneer, 131, 132, 136, 142, 144
Veneer Clamps, 34
Veneer Clippers, 129, 135
Veneer Dryers, 104, 129
Veneer Jointers, 92, 129, 133, 135
Veneer Lathe, 129, 135
Veneer Splicers, 92
Veneer Tables, 183

Washers, 177
Wood Fillers, 105
Wood Plastic, 105
Wood Treating, 11
Woodworking tools, 112-113, 166

Get the Right Kind of Teeth

for FAST • PRECISE • ECONOMICAL CUTTING

- Tough tungsten-carbide tips are brazed into highest quality steel saw body
- Kerf dimensions made to your specifications
- Teeth precision ground to the most exacting tolerances
- Available for rip, cut-off and trim operations on many different materials such as: hardwoods, fibre boards, masonite, plywoods, plastics and insulations
- Fully guaranteed. Teeth replaced free of charge if damaged during normal production operation

KARBIDE KING SAWS give you the highest standard for sawing efficiency in your woodworking operations. You no longer have to contend with expensive losses caused by frequent sharpening, ragged joints and excessive downtime. Karbide King Saws give you up to 50 times or longer operation before sharpening. More continuous operation with Karbide King Saws ups production figures and brings unit costs down on rip, cut-off and trim operations. These benefits have enabled woodworking plants to cut sawing costs to a minimum and at the same time provide finished parts with greater accuracy.

Deluxe is willing to help you prove to yourself the advantages of using Karbide King Saws. Our engineering service is available at all times to insure the proper saws for your operations. Write today for complete information on how Karbide King Saws can help you.

DELUXE SAW & TOOL COMPANY
2476 Blue Island Avenue • Chicago 8, Illinois

Factory and Sales Offices: 195 Perry Street, High Point, N. C.
Represented in Canada by: Canadian Electric Co., Ltd.

RIP SAWS • CUT-OFF SAWS • TRIM SAWS • GROOVERS • STICKER & SHAPER KNIVES

Index to Advertisers

A

A. A. A. Saw & Tool Service & Supply Co. ..191-192
Aber Box and Basket Factory 195
Abrasive Products, Inc. 103
Ace Company 177
Adhesive Products Corp. 157
Adjustable Clamp Co. 181
Aetna Plywood & Veneer Co. 120
Aget-Detroit Company 90
American Floor Surfacing Machine Company 97
American Machinery Exchange 189
American Machinery & Motor Co. 199
American Screw Company 151
American Varnish Company 98
Amos-Thompson Corp. 132
Anthe Machine Works 182
Armour and Company 27
Armstrong Machine Works 145
Associated Plywood Mills, Inc. 137
Atlas Press Company 148

B

Bailey and Sons, Inc., S. J. 191
Bass, Rudolf 166
Beach Manufacturing Company 4
Behr-Manning 8
Bell Machine Company 47
Berthelsen Engineering Works 180
Beverly Manufacturing Company 165
Bickler, Edgar G. 208
Big Four Carbide Tool Company ..Inside Front Cover
Birds Eye Veneer Company 136
Black Bros. Company, Inc. 34
Blake and Johnson Company 21
Boice-Crane Co. 81
Branyan and Peterson, Inc. 191
Burroughs-Ross-Colville Company 182
Burton Saw Company 173
Buss Machine Works 9

C

Cardinal Company 193
Carter Products Company 180
Cascade Saw and Tool Company 178
Chicago Mill and Lumber Company 192
Cincinnati Tool Company 89
Click, Mrs. A. Graham (Veneer Tables) 183
Clifton Machinery Company 190
Coe Manufacturing Company 129
Consolidated Machinery & Supply Co., Ltd. 79
Continental Screw Company 30
Cushman Manufacturing Co., H. T. 192

D

Deacon Plywood Company, J. C. 128
Delmhorst Instrument Company 171
Delta Power Tool Div. (Rockwell Mfg. Co.) 18-19
De Luxe Saw & Tool Company 211
Detro Manufacturing & Sales Company 176
Detroit Edge Tool Company 83
Detroit Stamping Company 108
Detroit Surfacing Machine Company 110
DeWalt, Inc. 114
Diehl Machine Works, Inc., G. M. 74-92
Disston and Sons, Inc., Henry 16-17
Doig, Inc., Wm. S. 147
Dremel Manufacturing Company 13

E

Eagle Sales Company 10
Ekstrom, Carlson & Company 153
Electric Equipment Company 192
Ervin Machinery Company 196

F

Fader Co., A. L. 197
Falk Mill Supply Co., Inc. 190
Fenton, Randall N. 184
Festo Special Woodworking Machines 54-179
Field Co., Wm. H. 173
Foley Manufacturing Company 169
Forest City Bit and Tool Company 48
Francis Company, Charles E. 143

G

Gaynes Engineering Company 72-204-209
Georgia-Pacific Plywood & Lumber Company ...141
Globe Machinery Company 191
Globe Vise and Truck Company 173
Gluetools, Inc. 62
Goodspeed Machine Company 174
Green Machinery Company 200
Greenlee Bros. and Company 42
Greenlee Tool Co.
(Div. Greenlee Bros. & Co.) 165
Gustafson & Scott Manufacturing Company .56-209-216

H

Hackett Co., J. Lee 192-194-198
Hamilton Caster & Manufacturing Company 185
Hanchett Manufacturing Company 67
Harrington, Inc., S. W. 190
Hart Woodworking Machine Co., Earle ...124-189-207
Hartford Clamp Company 175
Haskew & Company, R. K. 190
Heinemann Saw and Mfg. Company, F. 172
Hermance Machine Company 193
Hill Brothers Veneer Company 144
Hurricane Machine Works 175
Huseby Company, M.F. 95

I

Imrie Dry Kiln Company 107
Industrias Metalicas de Palmira S.A. 194

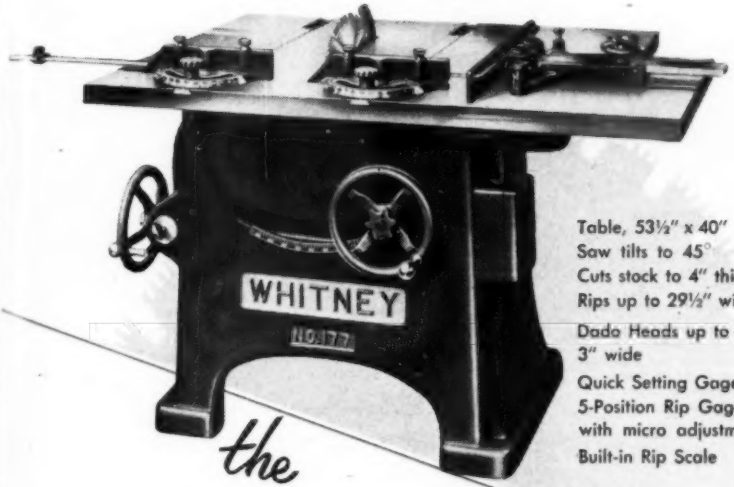
J

Jakes Foundry Company 176
Jiffy Manufacturing Company 118
Jones & Orth Cutter Head Company 7
Junior Tool Company 95

K

Kearney & Trecker Corp. (Walker-Turner Div.) .32-33
Keller Products, Inc. 106
Kenner, L. R. 189
Klok Institute 71
Koppers Company, Inc. 11
Kreig, Victor 117

Here's a Tilting Arbor Saw to Lower Your Sawing Costs



Table, 53½" x 40"
Saw tilts to 45°
Cuts stock to 4" thick
Rips up to 29½" wide
Dado Heads up to 3" wide
Quick Setting Gages
5-Position Rip Gage with micro adjustment
Built-in Rip Scale

the **WHITNEY** No. 177 *Variety Saw*

- **Precision built for accurate work**
- **Production or variety sawing**
- **Convenient operation—easy to adjust**
- **Versatile—quick set-ups for most sawing jobs**
- **Low Upkeep Cost**

Here's the Saw—the Whitney 177—to meet your requirements for accurate production, dependability and lower sawing costs. Will handle production sawing as easily and economically as the variety of smooth, accurate sawing required in the average woodworking plant. It's a Saw that can be depended upon to give maximum service at lower cost.

Write for latest bulletin giving complete details.

BAXTER D. WHITNEY & SON, INC.

BUILDERS OF FINE PLANERS FOR MORE THAN 100 YEARS

PLANERS • SHAPERS • VARIETY SAWS • MORTISERS • BACK KNIFE LATHES

WINCHENDON, MASSACHUSETTS, U. S. A.

L

Lakeshore Machinery Company 205
Land, Inc., L. J. 194
Larson Plywood Company 134
Lumber Manufacturers, Inc. 46
Lundberg, David V. 193

M

McDonald Machinery Company 204
McDonough Mfg. Company 180
McKnight Machinery Company 53
MacNeil Machinery Company 194
Marcoloy, Inc. 12
Marks Woodworking Machinery Company 193
Masonite Corp. 2
Massie Manufacturing Company 138
Matthews Machinery Company, W. D. 191
Mattison Machine Works .....Back Cover
Media Machine Works 170
Mereen-Johnson Machine Company 215
Merit Products, Inc. 36
Merritt-Solem Corp. 135
Meyers Company, W. F. 159
Moak Machine and Tool Company 187
Moisture Register Company 88
Moline Paint Manufacturing Company 167
Monite Waterproof Glue Company 140
Moore Dry Kiln Company 104
Morgan Mfg. Company 139
Mummert-Dixon Company 70
Muskegon Machine Company 192
Myers Truck and Caster Company 179

N

National Adhesives 14-15
National Air Sander, Inc. 69
National Casein Company 25
National Store Fixture Company 194
Nelson Company 164
Newman Machine Company 64
Northern Hardwood Veneers, Inc. 142
Northfield Foundry & Machine Company 162

O

O'Leary & Flynn 208
Oliver Machinery Company 1
Onsrud Machine Works, Inc. 154
Osborne & Sexton Machinery Company ...190-202-203
Oshkosh Wood Products Corp. 193

P

Paddock Tool Company 152
Paisley Products, Inc. 23
Parks Woodworking Machine Company, The 57
Peterzell and Company, Victor 190
Pheoll Manufacturing Company 158
Plaskon Division 101
Plycor Company 124
Pootatuck Corp. 178
Porter-Cable Machine Company 87
Porter Machinery Company, C. O. 3
Power and Company, L. 31
Process Engineering Corp. 185

R

Reed, Victor J. 192
Richardson Company, J. S. 84
Rockford Screw Products Company 156
Root Company, B. M. 206

S

Salstrom Carving Machine Company 73
Sand-Rite Manufacturing Company 82
Saw & Knife Specialty Company, Inc. 185
Schrader's Son, A. 55
Sheboygan Machine Company 168
Shimer & Sons, Samuel J. 181
Simonds Saw & Steel Company 111
Sinker-Davis Company 22
Spotnails, Inc. .....Inside Back Cover
Statler Edge Tool Company 91
Standard Dry Kiln Company 28-29
Stanley Works 24
Starrett Company, The L. S. 63
Sta-Warm Electric Company 175
Stem, Inc., Chester B. 134
Sundstrand Machine Tool Company 6
Supreme Woodworking Machinery Company 206
Surplus and Salvage Company, Inc. 193
Sutton Woodworking Machine Company 201

T

TAGliabue Instruments Division 109
(Weston Electrical Instrument Corp.)
Tannewitz Works 26-91
Taylor Manufacturing Co., James L. 122
Thayer Company, W. W. 190
Titan Tool Company 185

U

U. S. Cutting Chain Manufacturing Company 175
Used and Rebuilt Machinery 189

V

Veneer Machinery Company 133
Vulcan Electric Company 175

W

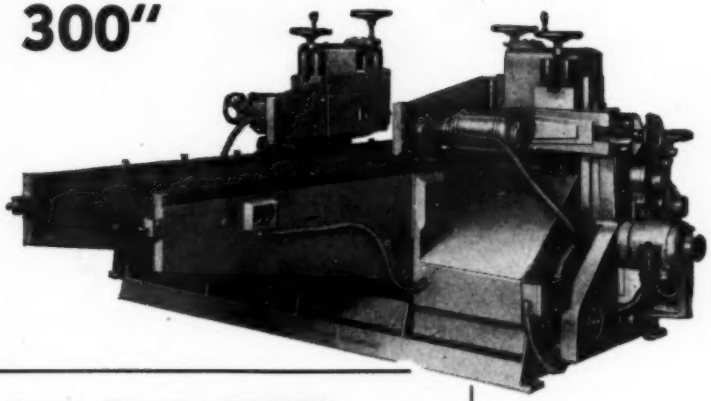
Walker-Turner
(Div. Kearney & Trecker Corp.) 32-33
Walter and Company, Inc., B. 155
Wardwell Manufacturing Company 90
Werner Company, R. D. 41
Weston Electrical Instrument Corp. 109
(TAGliabue Instruments Division)
Wetzler Clamp Company 161
Whipple and O'Brien 191
Whitney and Son, Inc., Baxter D. 213
Wisconsin Knife Works 61
Wolmac Company 192
Woodward Machinery Company 189
Woodworkers Tool Works 112-113-172-183-189
Worldsbest Industries, Inc. 191
Wrought Washer Manufacturing Company 177
Wyatt Machinery, C. G. 190
Wysong and Miles Company 20

Y

Yates-American Machine Company 38-39
Young and Bertke Company 160

Mereen-Johnson DOUBLE CUT-OFF SAW

"No. 300"



Outstanding M-J FEATURES

- Welded Steel Construction
- Snap-On Feed Dogs
- Rubber Block Hold-Downs
- Hi-Speed Motors
- Variable Feed Drive

Extreme Accuracy in Large Scale Production

"Continuous accurate work at high rates of feed . . . and with a minimum of operating and maintenance cost." That's what production men say about the streamlined Mereen-Johnson Double Cut-Off Saw.

Here are a few points to consider: All controls are grouped at the operator's natural feeding position . . . individual chain beam adjustment motor with easy reading tape dial . . . built-in hand wheels for quick changes.

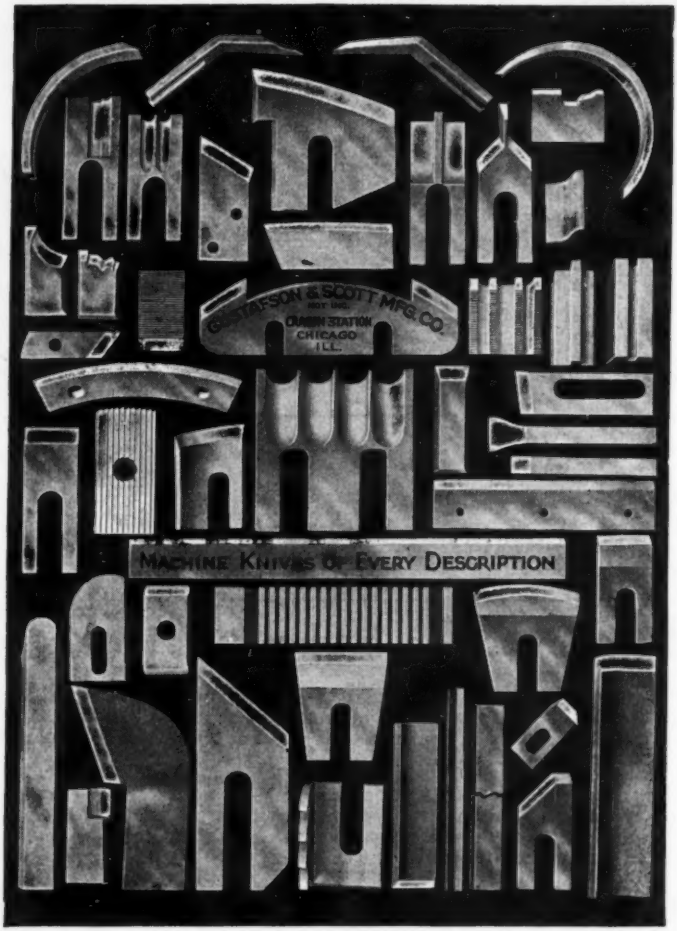
A range of sizes is offered to meet different working conditions. The No. 300 can be equipped with regular or hi-speed cope motors, stationary or jump dado arbor or other accessories as required for particular production problems.

Write for Circular No. 300

Mereen-Johnson MACHINE COMPANY

4401 LYNDALE AVENUE NORTH • MINNEAPOLIS 12, MINNESOTA

Do You Have a Knife Problem?—*SEE US!*



Over a half century of experience in the designing and manufacturing of woodworking machine knives is your assurance of getting highest quality tools, properly engineered for your job.

GET OUR QUOTATIONS BEFORE PLACING YOUR NEXT ORDER!

GUSTAFSON & SCOTT MANUFACTURING CO.

1637 N. Lowell Ave. — Chicago 39, Illinois

DOOR BEAD
SCREEN MOULDINGS
CASE BACKS
WEATHER STRIP, ETC.

SPOTNAILS

SASH
CORNER FRAMES, ETC.

SPOTPINS

SCREEN MESH
CAR LINING
TAGS
WINDOW SHADES
FABRICS AND PAPER

SPOT-TACKS

Automatic Magazine Feed Machines

The Spotnails Automatic *Magazine Feed* Machines do a better job—faster and cheaper. Call your local Spotnails representative or write for complete information regarding your specific requirements.

SPOTNAILS, INC.

YOU KNOW THE MACHINES YOU SHOULD REPLACE — THE FIRST STEP IS TO LET US SEND YOU CIRCULARS. CHECK AND RETURN THIS SHEET TODAY —

☐	Automatic Shaping Lathes - 30"-42"-54".
☐ 115-B	Variety Belt Sander.
☐ 303	Automatic Stroke Sander.
☐ 137	Ball Bearing, Hand-Block Moulding Sander.
☐ 138-B	Ball Bearing, Hand-Block Sander.
☐ 156	6-Ft., 8-Ft., Hand Lever Stroke Sander.
☐ 177	Electric Oscillating-Belt Edge Sander.
☐ 202	Fast-Feed, Straight-Line Ripper.
☐	Ball Bearing Moulders - 4"-6"-8"-10"-12"-16".
☐ 231	Pedestal Knife Grinder.
☐ 244	Electric Cut-Off Saw.
☐ D-618	Chain Feed Glue Jointer.
☐	Cutterheads - Moulder - Lathe.

Mattison Machine Works,
Rockford, Illinois.

Please send circulars and information on machines checked, attention of:

Mr. .....

Title .....

Firm Name .....

City .....

State .....

MACHINE WORKS

ROCKFORD · ILLINOIS

INES
—
LET
ARS.
THIS
ng
54".
er.
nd-
ander.
nd-
l Lever
ng-Belt
ht-Line
lders -
-16".
inder.
aw.
ulder -